

COMMONWEALTH OF MASSACHUSETTS  
DEPARTMENT OF PUBLIC UTILITIES

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BOSTON GAS COMPANY

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) D.P.U. 96-50  
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INITIAL BRIEF  
OF THE  
ATTORNEY GENERAL

RESPECTFULLY SUBMITTED,

ATTORNEY GENERAL  
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DATED: SEPTEMBER 25, 1996

**Attorney General**  
**Initial Brief**  
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## **I. Introduction**

### **A. Overview**

The Company has filed a base rate a case that seeks to address a number of industry-wide issues while at the same time seeking rate relief. The “big picture” issues include: further unbundling of transportation rates; a proposal to exit the merchant function; and the introduction of performance based ratemaking (“PBR”)- price caps scheme. *Hearing Officers’ Ruling On Motions For Clarification*, September 9, 1996. Addressing any of these issues, particularly in the context of a six-month base rate increase filing is taxing on the Department and Intervenors, alike. The Company, on the other hand, has had years to plan strategies, gear up its staff and resources, hire witnesses and prepare supporting documentation for all the issues to be presented. And what has it presented for a PBR scheme? The Company has presented a NYNEX-style price cap plan founded upon a negative productivity index (0.5%) that would allow BoGas to “achieve” productivity gains, and reap the rewards of ever increasing throughput, by simply demonstrating nominally greater efficiency.

On the other hand the Company has prepared its own management for life under PBR by charting out areas of potential productivity improvements. That exercise is the, so called, QUEST project, a consultant study which the Company now expects its ratepayers to pay for. Other items the Company seeks to have included in its cost of service relate to forward-looking productivity enhancements for which it looks to “load” into its test year, and recover from ratepayers, before it “casts off” into the world of PBR. In essence, BoGas seeks to require its customers to underwrite its PBR startup venture by including in its test year the costs a multitude of heretofore undiscovered productivity enhancing measures.

Under the current proposal BoGas seeks the best of **all** worlds. As it looks to depart the world of “command and control” regulation, the Company seeks substantial, precedent setting changes in cost recovery such as a future test year rate base, recognition of forecast expenses (proposed under the guise of the phase “cast-off period to PBR”) and post test year additions to rate base. Exhs. BGC-3 and BGC-38. The Company fails, however, to propose counterbalancing revenue reductions that reflect the resulting savings and productivity gains stemming from these post test year additions to rate base. See: *Boston Edison Company*, D.P.U. 18200 (1975), pp.18-19. And contrary to the Company’s “spin,” most of its adjustments *are* revenue generating and/or *are projected* to contribute to increased Company efficiencies and productivity.

BoGas also seeks to pass on the cost of reassessing its current business (size, structure and operational processes/practices) and preparing a road map and manual on how to succeed (read: maximize profits) in the new world of PBR, that it seeks to enter, *i.e.*, the QUEST project. Though the Company’s “spin managers” characterize BoGas’ efforts as Company sponsored “service quality enhancements,” in fact the Company sought only to enhance the *quality of its services*, - so they would be better positioned to compete. The reality is that QUEST was BoGas’s corporate reengineering of an infrastructure that was in dire need of “downsizing”. Through QUEST it also accumulated data from focus groups of customers, realtors and contractors finding that its “customer friendly” image needed polishing if the Company is to stand any chance of successfully implementing the 1996-2001 marketing strategy set forth as the QUEST project.

In summary, BoGas is attempting to “sell” its PBR scheme as an incentive-filled challenge and QUEST as a “service quality ” enhancement effort when, in fact, both were designed to

predominantly serve the interests of the Company and its shareholders by providing an extremely low productivity offset factor with generous exogenous add-ons. With a ratepayer prepaid QUEST, the Company has readily identified productivity areas and cost saving measures timed to be applicable and to pay dividends to the Company's shareholder, not its customers, under the PBR.

## **B. Statement of the Case**

On May 14, 1996 the Boston Gas Company ("BoGas" or "Company") filed with the Department of Public Utilities ("Department") revised rates and charges for gas sales and transportation designed to produce an additional \$23,159,710 from test year levels or a 4.7 percent increase. Exh. BGC-39, p. 1. In addition, the Company seeks approval of a performance based regulatory ("PBR") scheme based upon a price cap formula under which it would operate for the next five years. The Company seeks to apply his PBR to its newly adjusted revenue requirement which would raise an additional \$6,773,213 in revenues. Exh. BGC-6. Finally, BoGas seeks authority to initiate a plan to exit the merchant function and thereby phase-in the discontinuance of the sale of gas at retail, first to its commercial and industrial ("C&I") customers on December 1, 1996 and later starting on November 1, 1997 to its residential customers. Exh. BGC-1, p. 6. By Order dated May 17, 1996, the Department suspended operation of the new tariffs and proposal to exit the merchant function for C&I customers until December 1, 1996, pending an investigation into their propriety. The Department phased the Company's proposal to exit the merchant function to residential customers and proposes to initiate a separate investigation starting in January, 1997. Prehearing Conference Order, June 20, 1996 ("PCO"), Tr. p. 15.

The Attorney General of the Commonwealth of Massachusetts ("Attorney General") noticed his intervention under G.L. c. 12, sec. 11E. A large number of other intervenors sought, and were granted, intervenor status: the Massachusetts Division of Energy Resources ("DOER"); the City of Boston ("City"); an unincorporated association of large industrial, institutional and commercial users of gas calling themselves The Energy Consortium (TEC"); the Associated Industries of Massachusetts ("AIM"); a group of marketers including, Utilicorp United, Inc., PanEnergy Gas Services, Inc., Direct Energy Marketing, Inc., Natural Gas Clearing House, Inc. And Keyspan, known collectively as The Marketing Group ("TMG"); Enron Capital and Trade, Inc. ("Enron"); Distrigas of Massachusetts ("DOMAC"); Algonquin Gas Transmission Company ("AGT"); Imperial Oil Resources Company ("IOR"); United States Gypsum Company ("USGC"); Massachusetts Energy Efficiency Council ("MEEC"); Amoco Energy Trading Company ("Amoco"); Texas Eastern Gas Transmission Company, Inc. ("TETCo"); the Massachusetts Oil Heat Council ("MOC"); Global Petroleum ("Global"); received full intervention status; while a number of Massachusetts local distribution companies ("LDC") including: Berkshire Gas Company, Commonwealth Gas Company ("ComGas"), Essex Gas Company, Colonial Gas Company, Bay State Gas Company ("Bay State"), Fall River Gas Company received limited status as intervenors. PCO Tr., p. 5.

Evening public hearings at which the public was afforded an opportunity to comment on the proposed rate increase were conducted in Revere, Newton and Leominster. The Department conducted 24 additional hearings at its offices in Boston at which the Company presented seven witnesses and intervenors presented five witnesses.

## **B. Description Of The Company**

BoGas is a local distribution company (“LDC”) that supplies natural gas at retail via a distribution system, located in the public ways, to the metropolitan Boston area and many surrounding suburbs, west to Leominster, north to Rockport and south to Whitman. In total it serves 532,000 residential, commercial and industrial customers in 76 cities and towns. Exh. AG-10. During the 1995 test-year, the Company earned an 11.4 percent return on common equity after generating \$653,073,000 of revenues from the sale and transportation of 94.4 Bcf and 47.5 Bcf of natural gas. Exhs. AG-118 and AG-119. BoGas is wholly owned subsidiary of Eastern Enterprises, Inc. (“Eastern”), a voluntary association of companies which also owns Midland Enterprises, Inc. and AllEnergy Marketing Corporation, a newly formed gas marketing company. Exh. AG-119.

## **II. Performance Based Regulation (“PBR”)**

### **A. BoGas’ PBR Proposal**

#### **1. The Company’s PBR Proposal Is Patently Defective And Should Be Rejected In Its Entirety**

The Company’s response to the Department’s Order in D.P.U. 93-158 (1994), is a request to implement a “NYNEX style” price caps scheme. The scheme would index rates (now prices) to inflation minus an industry productivity factor, plus or minus exogenous factors. Exh. BGC-2. Upon review under Department standards set forth in *Incentive Regulation*, D.P.U. 93-158, pp. 52-66 (1995)<sup>1</sup>, it is clear that the Company’s plan must fall of its own weight. This

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<sup>1</sup> These review standards were further specified, explained and applied in *Massachusetts Electric Company*, D.P.U. 95-40-A, pp. 6-8 and 17-22 (1995).

proposal fails to create a “positive incentive over cost of service/rate of return regulation that can simultaneously deliver service to customers at lower prices, and encourage innovative services, thereby benefiting customers and firms alike.” *Id.*, p. 53. The circumstances are strikingly similar to those presented in *Massachusetts Electric Company*, D.P.U. 95-40-A (1995), where the company's proposal was rejected because the benchmarks were so easily achievable that the Department found that MECo’s PBR “failed to provide the Company with sufficient incentives to improve its future performance” hence “it failed to provide market place benefits to consumers”. *Id.*, p. 17.

BoGas has requested that the Department approve an entitlement program with an annual cost of living adjustment rather than a PBR which produces higher earnings “only from increased productivity gains. *NYNEX Order*, D.P.U. 94-50, p. 133 (1995). The Company has submitted gas industry productivity studies that produced *negative* productivity factors. *Id.* If these productivity numbers are to be accepted, BoGas’ trends would suggest that the gas industry is quite inefficient and due to become even more so in the future. But for its modest, and purely subjective, 0.05% stretch factor or “consumer dividend”, the Company's forecast is tantamount to an admission of an industry-wide inefficiency deathspiral. A PBR scheme premised upon studies that hold up greater and continuing inefficiency as the benchmark, provides the same low, virtually nonexistent, incentive rejected in *Massachusetts Electric Company*, D.P.U. 95-40-A (1995).

In the *Massachusetts Electric Company* case, the Department declared that a PBR proposal must set a “sufficiently high standard” so that a company would be rewarded *only for above average performance* and penalized for below average performance. *Id.* However, if that

“average performance” is negative, i.e., headed toward ever increasing inefficiency, it begs the question - Is this the appropriate performance measure by which you should judge this industry?

If BoGas’ productivity factors are to be believed the only reasonable conclusion that can be drawn from the results of BoGas’ filing is that a price caps proposal may just not be appropriate for the gas distribution industry and Northeast LDCs.<sup>2</sup> The Attorney General submits that the public interest would be better served by the implementation of a PBR mechanism that truly “incentivized” BoGas and the other Massachusetts LDCs to produce the results envisioned by the Department statement:

the primary objective of such an alternative regulatory framework should be to provide marketplace benefits to consumers through (1) more efficient utility operations, (2) stronger utility incentives for better cost control, and (3) enhanced opportunities for lower rates.

*Id.* at 5. The PBR scheme proposed by BoGas fails to achieve these Department objectives and contains such basic defects as would internally call into question the viability of such a PBR scheme, *i.e.*, the use of a productivity index that is negative.<sup>3</sup> If BoGas’ PBR scheme is applied industry-wide it would doom Massachusetts to ever increasing gas rates that would distinguish the state as an overly expensive place to live and do business in. Such an outcome runs contrary to the Department’s stated goal that: “Well-designed incentive mechanisms should provide utilities with greater incentives to reduce costs... .” D.P.U. 94-158, p. 55. Consistent with its

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<sup>2</sup> Indeed, under the BoGas proposal, Massachusetts ratepayers would face year-to-year base rate increases even under the most modest inflation rate scenarios. Exh. DPU-12. Such a scenario does not bode well for Massachusetts’ competitive position or its ongoing promotion as an attractive place to live or do business, relative to other parts of the country. With some of the highest gas transportation rates in the nation; allowing them to increase year-to-year will only exacerbate an already growing concern. *See*: Exh. USG-1.

<sup>3</sup> For additional, specific issues of concern regarding BoGas’ PBR scheme, see *infra*.

holding in the *Massachusetts Electric Company* Order, the Department should reject the BoGas PBR proposal.<sup>4</sup>

## 2. Service Quality Index

The Department has set forth clear and well defined principles that require adoption of a service quality index (“SQI”) under price cap regulation. *NYNEX Order*, D.P.U. 94-50 (1995) (“NYNEX Order”). The Department stated that:

Because price cap regulation introduces a financial incentive for the regulated firm to reduce costs a well designed price cap plan must include some form of protection against reduction in service quality for monopoly customers. Otherwise, (a price caps company) could increase profits by reducing service quality for captive customers. This reduction in service quality would be tantamount to a price increase. *NYNEX Order*, D.P.U. 94-50, p. 236;

( A price regulated company) would have an incentive under a price cap to reduce service quality for captive customers, and a well designed price cap plan ... is one that responds to the Company's incentives, not to its promises. *Id.*, p. 237, ft. 136.

The Attorney General in the present proceeding recommends that the Department an SQI, founded on the same precepts and based on the same design as that adopted in the *NYNEX Order*. In the *NYNEX Order* the Department adopted a multi-point threshold for overall performance that would be either zero or negative if the company fails to meet either the overall service quality

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<sup>4</sup> The implementation of PBR mechanisms in other jurisdictions appear to result in price reductions not the increases BoGas has proposed. A review of the Brooklyn Union Gas Company Settlement recently approved by the ALJ may give the Department good reason for reflection on the BoGas proposal contained herein. There the PBR scheme consisted of a one time *rate reduction*, and a five year rate freeze contingent upon inflation staying within an agreed ranges. *Brooklyn Union Gas Company*, New York Dept. Of Public Service, Case No. 95-G-0761 (May 31, 1996), Stipulation And Agreement Resolving Corporate Structure Issues And Establishing Multi-Year Rate Plan.

standards or for any month it fails to reach minimum levels of any three measures. *Id.*, p. 237-238.

The BoGas proposal provides a pale shadow of the protections afforded by the provisions of the SQI set forth in the *NYNEX* Order. In *NYNEX* the potential penalty was set a one percent of the company's revenues, *i.e.*, a one percent add-on to the productivity index.<sup>5</sup> *Id.*, p. 238. On the other hand, BoGas would cap its liability potential at \$1,000,000 or only one sixth of one percent of its +\$600,000,000 revenues. Exh BGC-3, p. 23. The Attorney General submits that particularly in light of the Company's slow progress in responding to past statements of concern by the Department on service quality issues, see § VII (F), *infra.*, the Department should place BoGas on a penalty level comparable to *NYNEX*. The Department should adopt a *NYNEX*-style one-way annual penalty at one percent of the Company's revenues (\$6,000,000).

The BoGas SQI is also deficient in that it contains insufficient number of measures of service quality. Even with the measures that the Company does provide, the minimum compliance levels are set at easily attainable levels. An example is the on-cycle meter read measure. An acceptable read level, under the Company's SQI proposal is set at 92 percent. The Attorney General submits that with over 80 to 85 percent of all its meters equipped with Enscan automatic reading devices ("AMR") a 99%-100% on-cycle reads of these *drive-by meter reads* should be required. Virtually all meters are set to be equipped with AMRs by the beginning to middle of 1997 (proposed to be BoGas' first year under PBR). Tr. XII, p. 86; RR-AG-1, p.124. The Company's proposed meter reading measure simply does not reflect reality.

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<sup>5</sup> Even with its relatively significant SQI penalty provisions, revelations of *NYNEX*'s recent service problems, demonstrate the necessity of properly designed SQI with a sufficiently sized penalty.

The second of the three measures, One-hour Odor Calls, set at a 95% benchmark, is also easily attainable. The Company testified that a special leak response crew (“emergency response teams”) has recently been established whose sole function is to respond to odor complaints (Tr. I, p. 53.) and has admitted that reducing the level of odorant by one-third is projected to reduce the number of odor calls by 5 to 15 percent. Tr. VII, p. 160; RR-AG-1, pp.113-116; Tr. XII, pp. 47 & 23. All told, with ratepayer resources funding the dedicated leak-response crews in each division and implementation of a reduced odorization policy, the Company has, since the test year, refocused operations to accommodate this SQI measure (or chosen this measure because it is set to up grade its performance therein).

A truer test for BoGas, and one that “incentivizes” the Company to *improve* its service quality, would be an SQI such as in the NYNEX Order that contains a wide range of service-related measures that have not been the focus of QUEST or BoGas’ other reengineering efforts. Such additional measures might include: (1) Department complaint statistics such as complaint levels, and bill abatement amounts to penalize the Company unless they bring their levels within the range of other LDCs; (2) a telephone service-call response-time measure with the Company penalized for failing to maintain the minimal time for a “human” telephone response to billing and service inquiries; (3) a cast iron replacement/relining measure to provide a sanction if the Company fails to maintain its planned pipe replacement program; (4) an unaccounted-for gas loss measure to penalize the Company for failing to maintain a one percent unaccounted-for gas level and; (5) employee safety measures that would seek to penalize the Company if lost employee hours rise and workforce efficiencies are lost.

The Department should incorporate the aforementioned measures in a NYNEX-style, one-

way penalty set at a maximum level of one percent of BoGas' revenues. As in the *NYNEX Order*, the Company should be held to achieve both the overall benchmark level, annually, as well as suffer a proportional penalty for failure to maintain minimally acceptable levels on individual measures. See *NYNEX Order*, D.P.U. 94-50, p. 238.

## **B. Company's Price Cap Proposal**

### **1. Introduction**

Notwithstanding the arguments against allowing the Company any rate increases at this time as set forth supra, if the Department decides to move forward at this time with some form of Performance Base Ratemaking ("PBR") scheme, it is clear from the record in this case that the Company's PBR plan is inappropriate for a regulated utility company and more specifically for one as inefficient as Boston Gas Company. The Company has filed a Performance Base Ratemaking ("PBR") proposal following the Department's order in *Incentive Regulation for Electric and Gas Companies*, D.P.U. 94-158 (1995). The proposal is Price Cap type plan. See Exh. BGC-3, 4, 5, 6, 7, 8, and 9. It provides for formula increases in revenues based on inflation less an increment of productivity over its five-year term. *Id.* Although the increase in rates is formulaic, the Company's plan allows it substantial flexibility in establishing individual rates. The following sections will discuss the many problems with the framework of the Company's plan as well as the individual components of the Price Cap formula itself.

### **2. The Company's Price Cap Proposal Has Many Serious Flaws**

The Company's Performance Based Ratemaking proposal is fundamentally flawed and should be rejected by the Department. The flaws generally fall into three categories. First, it

allows an inefficient regulated utility to profit from its inefficiencies. Second, the plan is inappropriate for a regulated monopoly in the manner in which it establishes prices. Finally, the plan allows the Company so many escape valves in establishing the annual revenue requirement change that it is little more than cost of service ratemaking dressed in different clothes. These basic problems with the underpinnings of the plan should cause the Department to reject the Company's price cap plan as proposed.

### **3. Productivity**

The results of the analysis of the Company's witness Lowry demonstrate that Boston Gas Company is an inefficient utility Company, and it has been getting less efficient as time goes on. Exh. BGC-10, 11, and 12. The Company's historical rate of change in productivity has been substantially less than the rest of the gas distribution industry. *Id.* In fact, the Company's rate of change in productivity has been negative, indicating that it is not only behind the rest of the economy but that it is also failing to stay in the same relative position as it falls further and further behind. Given the relative size and importance of Boston Gas Company in the Massachusetts economy, it is imperative that any PBR plan directly address this fundamental problem with the Company if Massachusetts is going to compete in the national and international economies.

### **4. Pricing**

The Company's proposal provides it pricing flexibility that will allow it to exercise monopoly pricing and cross-subsidization. Boston Gas like all of the gas distribution companies in Massachusetts is a monopoly provider of gas distribution services. Exh. BGC-3, pp. 41-43. It will continue to be a monopoly both during and after any PBR plan allowed as a result of this case. The Company will still have ability to exert a tremendous amount of market power under

*any* PBR plan.<sup>6</sup> As such, the Department must continue to regulate the Company's rates, not just the Company's revenue requirement.

## **5. Accounting Changes**

The Company's proposal allows it to profit during the term of the plan simply through accounting changes rather than through actual productivity improvements. If the theory behind performance based regulation is to be followed, the price cap plan should cause the Company to profit by lowering its costs through improvements in productivity and otherwise. However, the Company's plan allows it tremendous flexibility to lower costs with the stroke of the accountant's pen. The best example of this is the Company's proposal that it be allowed the flexibility to set depreciation accrual rates. Exh. BGC-3, p. 32. This flexibility will provides the Company with a variable that it can use to lower its costs at any time in order to increase its profits during the term of the plan. Other accounting changes that will "lower costs" are also possible including changes in those costs that are capitalized to construction, changes in the way the Company accounts for unbilled revenues, and changes in the assumptions used to determine the pensions and post-retirement benefits other than pensions costs. Any PBR plan that the Department orders should insure that the Company benefits from only *real* reductions in costs and not simply accounting changes during the term of the plan by fixing the depreciation accrual rate, and maintaining the current accounting rules and actuarial assumption currently being used on the Company's books .

## **6. Growth Adjustment**

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<sup>6</sup> The Department has previously stated that a firm with market power has the ability to raise the price of its product or service, and to sustain this price increase over a period of time, without losing so many sales that the price increase is not profitable. *AT&T Communications of New England*, D.P.U. 91-79, p. 31, n. 19 (1992); *NYNEX*, D.P.U. 94-50, p. 128, n. 65 (1995).

The Company's plan charges all increases in costs due to inflation to the customers while allowing the Company to benefit from the growth in sales. The Company's price cap formula insures that the Company will make significant profits simply as a result of the future growth in sales. Certainly, the Company should be allowed some share in the benefit from any growth in sales. However, it should not benefit simply from the normal growth that it would have achieved as the monopoly provider of gas distribution services. More important, however, the Company should not benefit from the additional sales achieved as a result of the efforts of gas sales marketers as the Company leaves the gas sales business.

## **7. Earnings Sharing**

The Department should require earnings sharing for any price cap plan that it might order. The Company's price cap plan sets the pricing rules at the beginning, only allowing for changes at the end of the five-year term. Exh. BGC-3, p. 31. It assumes that the components of the price cap formula including the productivity factor are correct for the full term. The Department and all the parties to this case are dealing with an industry that has so little information regarding the measurement and history of productivity changes. It should be a fundamental assumption of the introduction of any price cap plan that the components of the formula are *wrong*. They are either wrong from the inception of the plan and/or they are wrong since they change over the term of the plan. Furthermore, since Boston Gas Company is so inefficient to start with, its customers are currently paying a heavy price at the start of the plan. It is readily apparent that the Company can make large incremental productivity improvements during the term of the plan, those well beyond year-to-year changes that any price cap standard productivity will provide for. Certainly, the Department should incent such behavior. However, it should not allow the Company to retain the

bulk of the benefits associated with eliminating existing inefficiencies. The easiest and fairest way to ensure that the ratepayers receive the majority of the benefits associated with the reduction in costs is to provide an earning sharing mechanism.

A simple earnings sharing formula provides a deadband of returns on average common equity in which no sharing takes place with sharing above and below this deadband. A reasonable deadband would be in the range of 6 percent to 12 percent return on average common equity inclusive. Above that range, up to and including a 20 percent return on average common equity, the incremental earnings are shared 75 percent / 25 percent by the ratepayers / shareholders, respectively. Above 20 percent, the incremental earnings are shared 25 percent / 75 percent, ratepayers / shareholders, respectively. On the lower end, for returns below 6 percent, the incremental earnings deficiency is shared 50 percent / 50 percent, ratepayers / shareholders, respectively. This deadband and the sharing will provide additional incentives for the Company to improve its operating and financial performance.

## **8. Components Of The Price Cap Formula**

The Company has proposed that its annual revenue requirements be established using a price cap formula. The standard price cap formula sets the annual average change in prices according to the formula:

$$) P = I - X \pm Z$$

where ) P = the maximum allowable percent change in average prices;

I = the overall rate of change in prices for the company (the rate of inflation);

- X = the rate of change in productivity; and
- Z = the percent change in costs associated with any other exogenous factors.

The Company essentially used this same formula for its price cap proposal in this case.<sup>7</sup> Id., pp-10-11. The discussion below will address the flaws with each element of the price cap formula as the Company have proposed them and propose more appropriate measures of each to insure that there is sufficient incentive for the Company to improve its operations and lower its costs.

### **9. Inflation Factor**

The Company proposes that the I-inflation component of the price cap be determined by using the Gross Domestic Product Price Index ("GDP-PI") as the basis for determining the change in prices that the Company experiences. The change in the GDP-PI as reported by the government would be used as the "I" component in the formula.

### **10. Productivity**

The price cap formula is adjusted for the assumed annual change in productivity of the Company. Exh. BGC-3, p. 10. The Company sponsored the testimony of two witnesses, Mr. Lowry and Mr. Brendt to study the productivity of the natural gas distribution industry in general and the Boston Gas Company in relation to the industry. Exhibits BGC-10, 11, 12, 13, 14, and 15. Their testimony showed that the historical change in productivity for the New England gas distribution industry of -0.1 percent has been less than that of the United States economy of 0.3 percent, indicating that Boston Gas has fallen further and further behind U.S. in terms of

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<sup>7</sup> The Company added another component to the standard price cap formula. See discussion *infra*. This additional component provides an adjustment to the price cap for changes in the cost of equity.

productivity. Compare Exh. BGC-11, Table 3 and Exh. BGC-5, p. 3. Furthermore, their analysis shows that the group of New England gas distribution companies that were studied were substantially less productive than the national average of 0.4 percent for the gas distribution industry. Exh. BGC-11, Table 3. Thus, using Company or New England productivity numbers by themselves in the price cap formula will guarantee that the Company will remain inefficient relative to the U.S. economy as well as the gas distribution industry.

The Department should use the industry average productivity factor as the starting point for the X-Factor in this case. Using the industry average as the starting point will provide some initial target for the Company to shoot for as it moves into PBR. Furthermore, using the average will insure that at a minimum, the Company will not be getting any worse than the industry in terms of its own productivity.

The Department precedent with regard to productivity factors was established in NYNEX, D.P.U. 94-50. In NYNEX, the Department found that the industry average was more appropriate than more specific data since:

- (1) in a competitive market, NYNEX's prices would change at the same rate as the industry average productivity change, not at the rate of NYNEX's own productivity change; and
- (2) NYNEX's incentive to improve productivity would be dampened by the knowledge that future productivity offsets would be based on the Company's own productivity.

Id., pp. 163-164.

Using the industry average for all gas distribution companies instead of the New England average will provide Boston Gas Company the same incentives. Furthermore, using the industry average will incorporate the variation in the industry input price growth that should be used as an offset to

the inflation rate in the U.S. economy, as discussed *infra*. The Company provided no evidence and no new arguments that require the Department to change its precedent here. Therefore, the Department should use the national gas distribution average annual growth rate in productivity as the productivity offset in the price cap formula for Boston Gas Company.

## **11. The Productivity Analyses**

The productivity studies that the Company's witness Lowry performed has several serious flaws in them. These flaws should cause the Department to use great caution if the results are to be used in any fashion now or in the future. Each of the problems with the studies are discussed below.

The individual Company data that Mr. Lowry used to perform his productivity studies includes proprietary data that is not readily verifiable by the Department or the other parties in this case. This causes serious problems for relying on the necessary results in this case. The Company's witness Brendt has testified that data bases of this nature, which include non-public information, are unverifiable and suspect. Furthermore, it makes all future additions and updates to these results equally unverifiable and suspect. For these reasons, the Department cannot approve the use of these results that are based on unverifiable data.

Mr. Lowry and Mr. Brendt made inappropriate adjustments to Boston Gas Company's data before including it in their analyses. In both cases, Boston Gas Company's data for the years 1993 and 1994 were adjusted to remove costs that the Company believed were non-recurring . Exh. BGC-12, Table 3. Although removing non-recurring costs might be appropriate in theory, failure to do so for **all** of the other Company's in their comparison group makes the results and any interpretation of the results for Boston Gas Company to be totally meaningless. Therefore,

their analysis, including Boston Gas Company, are all incorrect and cannot be relied upon by the Department. Mr. Brendt's results indicating that Boston Gas is no different than the other New England companies in terms of their productivity must be rejected.

Mr. Lowry's analysis only uses the number of customers as the measure of output. Adding a measure of output based on firm volumes improves the results and therefore, should be included in the Department analysis. (Exhibit AG-11, Memo of July 17, TR. 10, pp. 47-49). Although Mr. Lowry stated he did not use volumes as a measurement of output because he believed that firm volume is sensitive to short-run demand shifts, the statistics on firm volumes indicate that this is not true. Exh. AG-12 and Tr. 10, p. 55 and Exh RR-AG-55. Firm volumes can be added to the analysis to improve the results by weighting the results using the coefficients shown in Tr. 10, pp. 50-51, and Exh. RR-AG-10. Making this adjustment to Mr. Lowry's analysis will better specify his regressions, improving his results.

Mr. Lowry's results should be updated to include the latest information available. His analysis used data for the years 1984 through 1994. Since he originally performed his analysis, the 1995 information has become available. The Department should base its analysis and findings on the updated results including the 1995 data.

## **12. Price Index Difference**

The Company proposes no offset to the productivity factor to reflect any differences that exist between the increase in input prices that Company experiences and that of the economy as a whole. The increase in input prices that the gas distribution industry experiences of 3.1 percent is less than that of the economy as a whole -- 3.6 percent. Exh. BGC-10, Table 1.<sup>8</sup> This difference

would be used in the determination of the productivity factor offset.

The Department should adjust the Company's proposed formula for this price difference, if it uses the GDP-PI as the basis for any price cap. The Department has found that the price index adjustment to be appropriate when employing a price cap formula, even when that input price differential is only 0.1 percent. *New England Telephone and Telegraph Company d/b/a NYNEX Petition for Alternative Form of Regulation*, D.P.U. 94-50, pp. 164-165 (1995). Furthermore, since the difference exists and in fact could change in the future, it is a significant component of any price cap that should be constantly measured and monitored.

The Company's use of the GDP-PI as the basis for the inflation component appears to be reasonable as long as the Company's productivity offset includes an adjustment for differences that exist between the input prices in the economy and those of the gas distribution industry. The Department should include the price index difference in any price cap formula. *Id.* Including the price index difference increases the Company's proposed productivity factor offset by 0.5 percent.

### **13. Stretch Factor**

The Company has provided a minimal stretch factor in its price cap formula. Exh. BGC-3, pp. 15-16. The proposal's overall price cap formula including the 0.5 percent consumer dividend in general sets its sites so low for all of the parameters of the formula as to make any reduction in cost a direct benefit to the Company's shareholders. *Id.* There are no significant changes

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<sup>8</sup> Mr. Lowry shows that the change in input prices for the gas distribution industry has been less than that for economy as a whole. However, he decided that the difference was too small to include in the formula even though it has the effect of doubling the productivity factor proposed in this case by the Company.

required in Company performance. There are no goals that will make the Company more efficient. There is no real stretch on the Company's part.

The productivity factor should include a stretch factor that insures that the Company will set significantly higher goals. The Department found the following in *NYNEX*, D.P.U. 94-50:

Because well-designed price cap regulation is superior to ROR regulation in promoting economic efficiency, the average annual productivity of the industry should be higher if the firms in the industry are regulated under a price cap rather than ROR. Therefore, if the productivity factor is based on the historic experience of the industry, the productivity offset for the future should be higher to compensate for this expected productivity gain.

*Id.*, p. 165.

In *NYNEX*, the Department found that a stretch factor of one percent will force the utility to be at least one percent more productive than it has been historically in order to maintain constant earnings. *Id.*, p. 165-166 (including footnote 98). The circumstances of the Boston Gas Company in relation to regulation is identical in this case.<sup>9</sup> Therefore, the Department should incorporate a full one percent stretch factor in any price cap formula that it orders.

#### **14. Accumulated Inefficiencies**

The Company's proposed price cap formula provides no compensation for the accumulated inefficiencies that result from the years of cost of service, rate regulation. The Department found the following in *NYNEX* :

If the telecommunications industry has been operating less efficiently during the long-term period that is the foundation of the productivity offset than it would have under price cap regulation (a notion that must be acknowledged in order to accept price cap regulation as superior to ROR regulation in maximizing economic efficiency), then there must be accumulated inefficiencies that should be accounted

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<sup>9</sup> Boston Gas Company's proposal in this case also requests the same consumer dividend of 0.5 percent that *NYNEX* proposed and the Department rejected. *Id.*

for in the first term of a price cap plan.

Since these inefficiencies have accumulated over time under the current ROR method of regulation,, it is unlikely that these inefficiencies could be identified and removed from the Company's rates by conducting a full rate case.

...

we find that our acceptance of the underlying rationale form approving price cap regulation, i.e., that the average firm under price cap regulation will be more efficient than the average firm under ROR regulation, requires us also to find that there are accumulated inefficiencies in the Company's current operations that the Department was unable to discover in its earnings review and would be unable to discover in a traditional rate case. These inefficiencies nevertheless should be accounted for in the price cap formula.

*Id.*, 166-167.

The analysis of Boston Gas Company's productivity is the same.

The Company's witness Lowry testified that the New England average annual rate of change in productivity was a *negative* 0.138 percent compared to a positive 0.420 percent for the nation's gas distribution industry. Exh. AG-12, p. 3. This means that on average the New England Companies fell behind 0.558 percent per year as compared to the rest of the industry (  $0.420 - (-0.138)$  ), accumulating to a total of 5.722 percent over the ten-year period.<sup>10</sup> If one assumes that the same annual rates of change in productivity have been in existence for the last twenty years, the total accumulated amount would be 11.77 percent. If one assume those same rates existed for 30 years, the total difference would be 18.17 percent. The Department should include in the productivity factor an increase for these accumulated inefficiencies by "recovering"

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<sup>10</sup> The accumulated total can be calculated as follows:

$$\begin{aligned}\text{Annual percent increase} &= (1 + 0.00558)^{10} - 1 \\ &= 1.05722 - 1 \\ &= 0.05722 \quad \text{or} \quad 5.722\%\end{aligned}$$

these inefficiencies over the five-year term of the proposed price cap plan. These assumed periods of constant differences in the change in productivity provide the following accumulated inefficiencies offset to be included in the price cap formula in this case:

<u>ASSUMED PERIODS OF DIFFERENCE IN CHANGE IN PRODUCTIVITY</u>	<u>TOTAL ACCUMULATED INEFFICIENCIES<sup>11</sup></u>	<u>ANNUAL ACCUMULATED INEFFICIENCIES OFFSET TO RECOVER IN FIVE YEARS<sup>12</sup></u>
10 Years of Difference	5.722%	1.12%
20 Years of Difference	11.77%	2.25%
30 Years of Difference	18.17%	3.40%

Using the results from these assumed periods as a proxies for the total inefficiency that exists in the Company's rates compared to the industry, a reasonable and *conservatively low* estimate of the Accumulated Inefficiencies offset that the Department should use in for Boston Gas Company is 2.25 percent.

## **15. Exogenous**

The Company's exogenous cost component of its Price Cap formula provides for rate changes associated with costs that are normal operating costs of the Company as well as those

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<sup>11</sup> The general formula is:

$$(1 + 0.00558)^N - 1$$

where N equals the number of years.

<sup>12</sup> The general formula is:

$$(1 + \text{Total Accumulated Inefficiencies})^{(1/5)}$$

costs that have nothing to do with the operations of the Company. The Department should restrict any exogenous cost adjustment to include only those costs of the Company's operations that are (1) truly out of the Company's control; (2) not included in the revenues or the price cap inflation component of the Price Cap formula; and (3) significant in amount relative to the Company's total costs. The many problems with the Company's exogenous cost proposal will be discussed below.

Price Cap plans can have a pricing component associated with the pricing formula that provides for changes in exogenous costs, the Z-factor. Exh. BGC-3, pp. 10-11. The Company has proposed that its exogenous costs include, *but not be limited to*, the following:

- changes in generally accepted accounting principles affecting the gas utility industry;
- changes in tax laws affecting the gas industry;
- regulatory, judicial or legislative changes affecting the gas industry;
- regulatory or governmental mandates affecting the Company;
- mandated investments for unreimbursed public works projects; and
- pipeline by-pass by customers with annual transportation revenues exceeding \$2 million.<sup>13</sup>

Exh. BGC-3, p. 19.

These requested exogenous changes along with the condition that they are not limited to this list essentially allows the Company to seek additional changes in rates associated with just about any possible change either foreseen or not. *Id.* This definition of exogenous does not provide a

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<sup>13</sup> It should be noted that this proposed change associated with loss of a large customer is a one way change that only works to the benefit of the shareholders. The Company is compensated if it loses a big customer. However, there is no provision for the circumstance when the Company gains a new larger customer which should work to the benefit of the ratepayers.

reasonable framework for a price cap plan.

The exogenous costs should be very limited in terms of the changes they allow for, otherwise, they would defeat the productivity improvements a well designed price cap can bring about. Generally, it should be assumed that all changes in costs are reflected in the price indices of the price cap formula. Only when the Company demonstrates that cost changes are not included in the those prices indices should they be considered for inclusion in the exogenous cost factor.

The Company's proposed exogenous cost changes have several flaws. First, exogenous costs should only include those costs that uniquely affect the regulated natural gas local distribution business. Therefore, all references in the Company's proposal to "the gas industry" should be changed to "the regulated natural gas local distribution industry." Second, exogenous costs should include only those costs associated with normal annually recurring operating costs of the Company. The Company should not be allowed to recover for mandated investments for unreimbursed public works projects, since similar costs of an annually recurring nature, associated with these projects are already built into the cost of service. Third, exogenous costs should not include changes in revenues associated with the loss of a customer. Clearly, customer retention is within the purview and control of the Company, and, therefore is not exogenous in nature. Finally, the proposed change that provides for "regulatory or governmental mandates affecting the Company " seems to imply that there could be some mandate that would effect just Boston Gas Company as opposed to all regulated natural gas local distribution companies. Even in the unlikely circumstance that such an event could happen, it seems that it is still within the Company control to intervene in order to reduce or eliminate those costs. Since these costs are

within the control of the Company, they should not be included in the exogenous costs. The Department's order in *NYNEX*, set forth similar restrictions on changes in exogenous costs. In that order the Department found the following:

We find that exogenous costs should be defined as positive or negative cost changes actually beyond the Company's control and not reflected in the GDP-PI, including but not limited to cost changes resulting from:

- changes in tax laws that uniquely affect the telecommunications industry;
- mandated jurisdictional separation changes;
- accounting changes unique to the telecommunications industry;  
and
- regulatory, jurisdictional, or legislative changes uniquely affecting the telecommunications industry.

*NYNEX*, D.P.U. 94-50, p. XX (1995).

Using the Department's precedent in *NYNEX* and the suggested changes to the Company's proposed exogenous costs discussed *supra*, the Department should use the following definitions of exogenous changes:

Exogenous costs should be defined as known and measurable positive or negative cost changes actually beyond the Company's control and not reflected in the GDP-PI resulting from:

- changes in tax laws that uniquely affect the regulated natural gas local distribution industry;
- accounting changes unique to the regulated natural gas local distribution industry; and
- regulatory, jurisdictional, or legislative changes uniquely affecting the regulated natural gas local distribution industry.

This definition will provide a reasonable basis to allow the Company to recover costs beyond its control.

Finally, it should be noted that the adjustments associated with these exogenous changes should all be prospective in nature. The Department should not allow the Company to seek to recover costs that were incurred prior to the year in which the new rates resulting from the annual price cap adjustment will be in effect. To do otherwise would be tantamount to retroactive ratemaking. Such treatment would essentially allow the Company to defer costs by creating regulatory assets, effectively eliminating the incentive for the Company to control those costs in any fashion or to reduce other costs in order to minimize their affects on the Company's bottomline. Thus, the Department should find that the price cap formula should only be adjusted for those allowable exogenous changes that are prospective in nature.

### **C. Cost Of Capital Adjustment**

The Company's cost of capital adjustment to the price cap formulas should be rejected by the Department. The Company has proposed a cost of capital adjustment to its price cap formula to allow for changes in the cost of capital. Exh. BGC-3, pp. 24-27. This adjustment is unique to

the Company's proposal, since it is not standard to the traditional price cap formula. Of course the standard price cap formula does not include such a factor since to a certain extent, since the Company has control over its capital costs. More important is the fact that the changes in the cost of capital do not affect just the regulated local natural gas distribution industry, but also the economy as a whole so that the price indices should reflect these changes. Therefore, the Department should reject the Company's proposal to include a cost of capital adjustment in the price cap formula since those costs are greatly within the control of the Company and already reflected in the price indices.

#### **D. Term**

The Company proposes that its price cap plan remain in effect for five years before the rates can be reviewed or changed outside of the proposed price cap plan. Exh. BGC-3, p. 31. If the Department provides for earnings sharing as a safety against the Company earning exorbitant profits as argued by the Attorney General *infra*, a five-year period would be reasonable for the Company. However, without the earnings sharing component to the price cap formula, the Department should shorten the term of the plan to only three years to allow for the necessary adjustment to the price cap to correct those elements that were mis-specified in the establishment of the original rates.

#### **E. Pricing**

The Company's proposal provides it pricing flexibility that will allow it to exercise monopoly pricing and cross-subsidization. Exh. BGC-3, pp. 41-43. Since Boston Gas Company will continue to be *the* monopoly provider of gas distribution services, it will always have ability

to exert a tremendous amount of market power under *any* PBR plan. Continued regulation of the Company's rates as required is required.

The Department should require that all rates be allowed to increase only at the rate of change as provided by the price cap formula. The price cap mechanism should not be used to subsidize one class of customers at the cost of another as the Company proposes.<sup>14</sup> Allowing the Company to increase rates for one class higher than the price cap rate would provide the Company such an opportunity, as it might increase one class' rates higher than the price cap in order to subsidize an increase in another class that was less than the change in the price cap. This type of subsidization flies in the face of the underlying principles of rate design and cost allocation that the Department has established over such a long history. See Rate Design precedent in *Boston Gas Company*, D.P.U. 93-60, pp. 367-368 (1993); *Bay State Gas Company*, D.P.U. 92-111, pp. 318-320 (1992); *Western Massachusetts Electric Company*, D.P.U. 90-300, pp. 13-15 (1991); *Berkshire Gas Company*, D.P.U. 90-121, pp. 185-187 (1990); *Colonial Gas Company*, D.P.U. 90-90, pp. 5-7 (1990); and *Boston Gas Company*, D.P.U. 90-17/18/55, pp. 12-14 (1990). See also *Cost Allocation Precedent in Boston Gas Company*, D.P.U. 93-60, p. 331 (1993); *Massachusetts Electric Company*, D.P.U. 92-78, p. 116 (1992); *Western Massachusetts Electric Company*, D.P.U. 90-300, p. 13 (1991); and *Boston Edison Company*, D.P.U. 1720, pp. 112-120 (1984). If for some reason, the Company believes that its rates are deficient so that some rate class is not recovering its full embedded cost, then the Company can petition the Department to

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<sup>14</sup> This should not necessarily prevent the Company from lowering its rates below embedded costs for one class if there is some perceived threat of competition for some part of the Company's business. However, that discount should be born by the Company's shareholders as would happen in any competitive industry.

rebalance the rates at the end of the plan. Only then, after a full review of existing rates and a complete cost allocation study of all of the Company's services, should the rates be changed. Therefore, the Department should reject the Company's proposed pricing flexibility proposal and order the Company to cap all rates at the change as provided by the price cap formula .

The Company proposal allowing it to "bank" price cap increases should be rejected by the Department. Under its proposal, to the extent that the Company does not take the full increase allowed under the price cap formula for any rate, the deferred increase can be "banked" or saved for some later time when the Company could use it to increase rates for a particular class, higher than the rate as a result of the formula at that future time. The fact is that there was no need to increase rates for a particular class to match the price cap formula during for any given period means that those rates were sufficient to recover their costs. The Company should not be allowed to then increase rates over the formula to recover implied increases in costs that did not occur as a result of the requested "banking" of past decreases. Therefore, the Department should deny the Company's request to "bank" any price cap increases which it does not take in any given year.

### **III. QUEST Project**

#### **A. Cost Setoffs Must Be Denied Because QUEST Is The Company's Road Map and Manual For Succeeding In The World Of PBR**

The Company has invested \$7,692,839 of its test year revenues in a review of its business

process in an attempt to identify latent business opportunities within their operations and thereby identify, quantify and establish a plan to extract waste and inefficiencies from its operations. Exh. BGC-39, p. 27. The management of BoGas would have us believe that they went through this exercise for the sole purpose of upgrading one of the worst customer service quality records of any utility in the state. Exh. BGC-1; Tr. VII, p. 142.

A closer look at the sum and substance of the QUEST project shows it to be a management tool for repositioning the Company operations to take full advantage of their last days of "cost of service" regulation<sup>15</sup> while setting the Company *on a course to* substantial productivity gains. By including the QUEST project and system upgrade costs as an offset to test year savings, the Company benefits twofold: (1) ratepayers foot the costs in the test year savings offsets, while (2) shareholders reap the productivity gains in the forthcoming years under its PBR scheme. As BoGas' Vice President for Marketing observed, the gains of implementing the QUEST based program of vehicle take-home program started in October, 1995 are only now starting to pay off. Tr. XVI, p. 212. This is the likely scenario for a significant number of QUEST business opportunities identified in the QUEST Phase I chart, entitled Sizing and Timing of Impact, Opportunity Map. RR-AG-1, p. 21. The Department will note therein that the more potentially rewarding, higher valued savings are in such opportunity areas as "Maintain System Facilities", "Provide Construction Services" and "Process Field Requests" each of which are described as longer term, more challenging to implement, yet potentially more valuable reengineering opportunities. RR-AG-1, p. 21; Tr. XII, pp 60-70.

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<sup>15</sup> The Company seeks to accomplish this by charging costs of the QUEST project and its projected productivity upgrades to ratepayers at little or no cost to shareholders.

Having implemented but a few of the 52 QUEST-identified business “opportunities,” the QUEST reports and statistics, in effect, remain the Company’s manual on how, and where, to achieve productivity gains under the new world of PBR. BoGas is now controlling the implementation and timing of these productivity increases and cost cutting measures so that its *shareholders will reap the benefits*. And, if BoGas’s QUEST offset adjustments are allowed, *ratepayers would have been forced to “pick up” the tab*.

QUEST was indeed an expensive, multi-faceted undertaking. As detailed, *infra.*, QUEST not only provided a manual on how to increase productivity, but also a guide on how to structure a readily achievable service quality index criteria under a PBR regiment. See RR-AG-1, pp. 12-13 “Key Benchmarks”, pp. 60-64, “Process Field Requests - Key Measures” and p.114,116 &124 “Maintain System Facilities - Enscan Acceleration”. It has apparently been used in preparation for the design elements of the PBR proposal, such as the SQI, at easily attainable levels<sup>16</sup>. Also QUEST has allowed the Company to quantify and thereby prioritize the cost/benefits of marketing efforts to increase Company throughput; introduce initiatives that would allow for further downsizing the Company’s workforce; implement further re-engineering of business processes that, once PBR had been allowed, enhance the Company’s productivity to the sole benefit of shareholders. *Id.*, pp. 8-13. Such proposed business “opportunities” are detailed

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<sup>16</sup> See Mr. Millers’s testimony on SQI and compare the following references in the QUEST Phase I Report: SQI (1.)Safety Requirement - Odor Call Response see QUEST opportunities Reduce Leak Orders, p. 68, Reduce Odorization, p. 120 and Dedicated Leak Response Team, Tr. XII, p. 47 ; (2.) Calls Met On Same Day Requested -see QUEST opportunity- Reduce No Heat Orders, p. 66 and Increase Productivity of Service persons, p. 67; and (3.) On-Cycle Meter Reads - see QUEST opportunity ENSCAN Acceleration, p. 124 (Note the Company’s decision not to accelerate the ENSCAN program thereby allowing the incremental efficiencies to be captured after the rate caps SQI go into effect, Tr. XII, p. 88.)

throughout the QUEST Phase I report and focus group reports. RR-AG-1; RR-AG-24 and Exh. AG-252. The QUEST reports documented business opportunities and the QUEST focus groups, made up of business allies and potential consumers, told them to whom the new marketing efforts should be addressed. In this filing, the Company, as part of their “cast off” PBR rate case, seeks to pass on the cost of conceiving its PBR marketing plan, also known as QUEST. The Department should deny the set off of all the consulting and related costs against the annualized savings as proposed by BoGas. Exh. BGC-55.

The main focus of QUEST was to improve/re-engineer the business environment within BoGas to best position it to take advantage of the “changing regulatory environment”, *and* the advent of PBR. Exh. AG-252, p. 5. That is, that the main focus of the effort was to “reposition” the Company for its venture into the brave new world of PBR. As stated in the Deloitte and Touche RFP response.<sup>17</sup>

The management of Boston Gas has embarked on a multi-phased *project to conduct a critical review of business processes, measurement systems, and its organization structure* in order to prepare the company for future growth, operational efficiency, increased customer service, and new business development. ... *This business process improvement initiative* is intended to stimulate new and “outside the box” thinking directed at achieving dramatic vs. incremental process improvements *in the areas offering the greatest opportunity*.

(Emphasis added) *Id.*, p. 5. No mention is made of enhancing service quality, the clear

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<sup>17</sup> The management consulting firm that eventually won the job and conducted the QUEST project. RR-AG-1.

emphasis<sup>18</sup> throughout is on *business growth and development*, not on improvements in the approach to service quality as BoGas spin managers would have it. Exh. BGC-16, p. 5.

Continuing with the Phase I QUEST Report ( the prime QUEST document) this emphasis on identifying business growth areas and potential for productivity gains and business development continues as the dominant focus. RR-AG-1. A reading of the Phase I Report demonstrates that the identification of business opportunities was the main focus and purpose for QUEST. *Id.*<sup>19</sup> In preparing this report, the Company divided its business into several processes that identified a gas distribution company 's major operations. From each of these processes were identified "Opportunities" that were then quantified and ranked using comparisons to a national test group of other LDC's. These business opportunities were identified by a team made up of consultants and a group of BoGas employees that were described as some of its most highly motivated, creative and experienced employees. Tr. I, p.

Each "business opportunity" was described and evaluated to determine how the opportunity could be implemented, what costs/investments were needed to be made to take advantage of the opportunity, and what cost savings or revenue enhancements could be expected as a result of there implementation. This analysis was conducted for each of 11 Company business processes and within these processes a total of 52 business opportunities were identified and analyzed.

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<sup>18</sup> Though service enhancement is referenced from time to time it is done in context of improving BoGas' relations with customers and its business allies (heating contractors, plumbers and builders) to its marketing ability. RR-AG-1, pp. 69, 155, 156, 157 and 170.

<sup>19</sup> See also the Table of Contents to the Phase I Report prepared by the Attorney General and attached hereto as Appendix 1.

A reengineering of the Company's operations occurred in the spring of 1995 that was followed, by what is best characterized by the term "downsizing", later that same year. Tr. VII, pp.147-151. The business restructuring and reduction in force was attributable to application of related corporate philosophies but not a direct result of a QUEST project recommendation. Tr. I, pp. 34-35, 47. From this re-engineering/downsizing effort, a group of 109 full time equivalent positions ("FTE") were identified and eliminated. *Id.*; Exh. BGC-38, pp. 25-28. The savings from this downsizing comprise the bulk of the \$12,050,00 gross savings and the \$5,479,802 net savings, the Company claims to have realized to date. These savings, net of QUEST costs, however, are attributed to the QUEST project by some of the Company witnesses but not by others. *Compare*: Exh. BGC-39, p. 17 and Tr. I, p. 47.

As striking as the predominant business-process nature of QUEST's content and the future opportunity-related nature of the analysis, is the almost total lack of any discussion of how service-improvements may be had. Service-quality or service-improvement/ customer relations are discussed in any detail in only 3 pages (of 197 page report) when reference is made to Department dissatisfaction with the Company's handling of customer billing inquiries and where customer contacts are considered as marketing opportunities for new company services such as home appliance insurance. Indeed, in the one instance where QUEST deals with the principle reason for customer dissatisfaction, estimated bills, the Phase I Report analyses the ENSCAN automatic reading device program as a potential revenue enhancement opportunity. RR-AG-1, p. 124 and 125. No mention is made of the impact on the level of customer complaints that stem from this the issue and which is acknowledged as the largest source of customer complaints. *Id.*;

Yet another indication of QUEST's lack of true service quality focus is what the Company trumpets as a major service quality improvement - service personnel cell phones. Tr. XVI, p. 210-211. To hear the Company's spin, it seems bent on justifying the proliferation of over 800 cellular telephones to Company personnel was done to enhance customer service by allowing a 5 minute lead call to waiting customer in need of service. Tr. IV, P.14; Tr. XVI, pp. 211-121. In reality this opportunity is much more a employee productivity measure than quality of service enhancement. The customer gets a 5-10 minute "heads-up" call, this, after having to take time off from work and wait all morning or all day for a service person to arrive. *Id.*, p. 211. The Company, however, benefits from fewer dispatch personnel, greater service personnel productivity through greater internal coordination of service and repair support personnel, fewer CGIs calls and a greater number of service calls per work period. *Id.*, p. 212 . On the other hand, the record shows that these phones also are in use by Company maintenance personnel for inter and intra Company calls that greatly enhances productivity of repair and maintenance efforts. *Id.*, p. 209. And since these measures were only instituted in later 1995, the productivity gains are not reflected in the test year . Tr. XVI, p. 212.

The aforementioned provides but one of a number of such examples where QUEST **costs** are placed within the test year but **gains** (cost reductions and productivity increases) will be realized by Company shareholders under BoGas' PBR (given that the Company's productivity

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<sup>20</sup> To further emphasize the Company's and QUEST's lack of service quality focus, the QUEST "opportunity" that would have accelerated Enscan placement to increase revenue collections and reduce "could not get in's" ("GCIs")(and, though not mentioned, also dramatically reduced estimated reads) has, as yet, not been implemented by BoGas. Tr .XII, p. 86.

index is virtually zero). Meanwhile the Company proposes that ratepayers pick up the full level of costs on the pretense that ratepayer interests are being served, when only slight customer benefits are generated. More than 50 other examples are set forth throughout the QUEST documents: the use of advances in pipe replacement and repair technology<sup>21</sup>, BoGas serviceperson marketing tune-ups, service plans and kitchen appliance insurance; out-sourcing of vehicle fleet maintenance and automating the turn-on/turn-off regiment. RR-AG-1; see also Appendix A, attached hereto.

The fairest way to reflect the division of the benefits that flowed from the Company's QUEST project is to equitably share the expenses generated by the undertaking in relation to the benefits derived. Ratepayers will, after certain adjustments (see: *infra.*), secure the benefits of the employee reductions and therefore should bear the cost of enhanced pension and severance packages in the amount of \$4,165,617. However, shareholders are, by far, the primary beneficiaries of the QUEST reports prepared by the management consultants and presented to BoGas executives. Under PBR, or between normal rate cases, the shareholders also have the most to gain in the short and long-term from will the business opportunities identified and quantified therein. Hence the consulting and incidental costs in the amount of \$3,527,222 should be assumed by BoGas. Exh. BGC-39, p. 27.

**B. Under Department Precedent QUEST Savings Both During and After The Test Year Must Be Used To Offset Allowed QUEST Expenses**

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<sup>21</sup> Exhibit AG-114, *Testing and Evaluation of Trench less Renewal Systems For Gas Distribution Pipes* by Steven R. Kramer (the last research article in the multi-article exhibit), p. 14 shows the great potential for cost and time savings.

The Company in adjusting out test year savings in its proposed QUEST Wage and Salary Expense Adjustment seeks to capture test year savings without a corresponding reduction to allowable QUEST expenses. Exh. BGC-39, p. 17. BoGas's proposal does not satisfy existing, clear precedent which requires that both test year and after test year savings be grossed up and used to reduce implementation costs of new programs. *Massachusetts Electric Company*, D.P.U. 92-78 (1992) at p.47- 48, fn.37. BoGas, by proposing to reduce the total net QUEST savings by backing out the 1995 savings of \$1,635,022. Exh. BGC-39, p. 17, Wage and Salary Expense Adjustment. In effect BoGas seeks to twice capture these savings for its shareholders<sup>22</sup>, as opposed to reducing the cost of allowable QUEST expenses. The 1995 this amount should not be used to reduce the Annualized Salaries and the adjustment should be in the amount of \$4,679,526 (\$5,479,804 x 85.4%).

**C. The Department Must Order BoGas To Add Back Into Its QUEST Savings The Unrefilled Positions Vacated In The Company's Downsizing**

As part of the reengineering of the Company's internal structure, BoGas conducted a downsizing of its workforce during the test year. Exhs. BGC-38, p.25; Tr. I, p. 47. Due to the Company's generous offer of enhanced severance packages and pension benefits to employees, the proposal was over subscribed by 22 employees. Tr. XI, p. 75. These additional 22 employees accepted the separation option and the Company has not counted them in its calculations of QUEST savings because it claims that it will at some time refill those positions. Exh. BGC-38, p.

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<sup>22</sup> During the test year these positions were included in the Company's cost of service and recovered from ratepayers even though the positions were empty. Now, in addition, the Company seeks to further reduce labor cost savings, to its benefit. Exh. BGC-39, p.17.

27. As noted previously, Department precedent requires that test year and after test year savings must be netted against the cost of a project such as QUEST. *See: Massachusetts Electric Company*, D.P.U. 92-78, p.47-48 (1992).

Thus both the savings resulting from the employee oversubscription which occurred in 1995 (a total of \$1,602,000 - Tr. XI, p. 75) and the savings the Company is currently experiencing as a result of not refilling the positions during 1996 (or a total of \$1,212,000 - Tr. XI, p. 77), under Department precedent, must be used to reduce the cost of the QUEST program before any such costs can be passed on to ratepayers. *Massachusetts Electric Company*, D.P.U. 92-78, p. 47-48 (1992).

**D. The QUEST Amortization Period Should, At A Minimum, Match The Company's Initial PBR Term Of Five Years**

The Company has requested an accelerated recovery of QUEST expenses over a period of time without any stated justification.<sup>23</sup> Exh. BGC-38, p. 30. Department policy seeks to set amortization of expenses so as to spread the cost over the expected life of the equipment or benefits. *Boston Gas Company*, D.P.U. 88-67, p. 143 (1988). The benefits of QUEST to the Company will continue into the future, certainly through its first PBR period or five years. Tr. I, p. 45; Tr. II, p. 83. Therefore the appropriate period the Department should adopt for the amortization of the allowable QUEST expenses is five years.

#### **IV. Quality Of Service**

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<sup>23</sup> The Company testimony cites to pages 232-25 in the *NYNEX Order*, D.P.U. 94-50, where the discussion centers on the SQI.

**A. BoGas' Quality of Service Continues To Be Subpar Despite DPU 93-60 Warnings And Therefore Sanctions Should Be Imposed**

As evidenced by BoGas' extremely high proportion of customer complaints and billing abatements ordered by Department's Consumer Division, BoGas' quality of service continues to be subpar and out pace other LDCs, in spite of the Department's past concerns over this issue. *Boston Gas Company*, D.P.U. 93-60 (1993), p. 10; Exh. AG-112. Indeed, the Company had a record year in billing abatements in 1994, only one year after its last rate order, in which the Department placed the Company under a warning to improve. Exh. AG-112. While BoGas continues to serve 40% of the state's natural gas consumers, it continues to be the generate over 56.4 percent of all the Department's 1995 Consumer Division gas company complaints (in 1994 the number stood at 65.5 percent). *Id.* In addition, the Company continues to set records among all Massachusetts utilities for bill abatement awards. *Id.*

The answer from the Company has historically been to blame its customers, its service territory configuration, and its aggressive billing collection practices. *Boston Gas Company*, D.P.U. 93-60, p. 9 (1993). In the present filing the Company has included the results of surveys it asserts provides unbiased evidence of the high degree of customer satisfaction. Similar Company directed surveys (choreographed by Company personnel or agents and conducted with paid interviewees) were accorded little credence and no weight in D.P.U. 93-60, p. 10. They deserve a similar fate here. See: Exhs. AG-4 and AG-13; Tr. VII, pp. 167-170.

Though Department complaint statistics do not tell the whole story, the Department has

recognized that they serve as a “warning sign of other problems that cannot be disregarded .”<sup>24</sup> D.P.U. 93-60, p. 10. The Company is sure to point to recent improvement of its numbers of complaints and billing abatements (which not surprisingly occurred during test year) and QUEST as efforts to improve service. Indeed the QUEST Phase I Report acknowledged a problem with customer relations but sought to address the issue only to the extent that such a poor customer image might hamper the Company’s planned efforts to market new products to these same customers. RR-AG-1, p.69

However, new, computer-assisted telephone answering systems, 15-minute "heads up" cellular phone calls (after sitting, waiting half the day) and promises of new, customer-friendly service representatives<sup>25</sup> (who then pitch BoGas' new appliance tune-ups and service plans), does not constitute improved quality of service. And notably, the Department has recognized that under a PBR scheme, service quality in the provision of monopoly services, faces deterioration if stringent measures and target achievement levels are not enforced. *NYNEX Order*, D.P.U. 94-50, pp. 235-236 (1995), pp. 235-236.

To affirmatively address both the past and future service quality issue with BoGas, the Department should apply a “carrot and stick” approach. The Company should suffer a sanction by way of a reduction in its cost of service in the amount of the average of the past three years

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<sup>24</sup> Indeed, the Company's own marketing vice president, Mr. Miller, testifying on the Service Quality Index proposal stated that "output" measures, *e.g.*, the Department's complain statistics and bill abatement levels, are better measures of achievement than input measures or "subjective oriented" surveys. Tr. XII, pp. 19-20; Tr. XVI, p. 239; also see *Vital Signs*, Steven M. Hronec, pp. 127-149.

<sup>25</sup> Again, these process improvements pointed to by the Company are "input measures" which not good indicators of productivity according to BoGas' vice president, Mr. Miller. Tr. XVI, p. 239.

billing abatements, \$169,606. In addition, the Company's PBR mechanism (if one is approved by the Department) should contain a service quality index element that “incentivizes” the Company for achieving representative levels of Department complaint statistics (including complaint and bill abatement levels) compared to other LDCs’ consumer complaint numbers and billing abatement levels. Tr. XVI, pp. 215-216.

## **V. Rate Base**

### **A. BoGas’ Future Test Year / Case-Off Period Proposal Must Be Rejected As Contrary To Established, Well Founded Department Policy Of Test Year End Rate Base**

The sum and substance of what BoGas proposes under the guise of a “cast off” period is in essence a request that the Department initiate a future test year approach for rate base. In this filing the largest portion of these items are BoGas' estimates of 1996 expenditures in, what the Company claims, are non-revenue producing investments<sup>26</sup> such as pipe, meters, and computer systems to assist BoGas in entering its new business ventures (as it enters the new world of PBR).<sup>27</sup> All the aforementioned are *projected or planned* to be spent in 1996. Exh. BGC-38,

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<sup>26</sup> The Company's claims ring hollow in the face of QUEST Phase I Report findings that show ENSCAN meter replacements to hold opportunities for productivity gains and new pipe replacement techniques to be cost saving measures. RR-AG-1, pp. ; RR-DPU-82.

<sup>27</sup> This request also flies in the face of Department precedent that company PBR proposals be consistent with Department precedent. *Incentive Regulation for Electric and Gas Companies*, D.P.U. 94-158 (1995), p. 58. From this example it is clear why the Department sought such constraint on the part of filing companies. In fact any multitude of cases can be made for significant changes in rate setting policy simply due to the change in regulatory environment. However, no compelling case is put forward here to justify application of such a change as asymmetric, future test year adjustments.

pp. 13-14. Neither does the Company shy away from describing these expenditures as (1) projected and estimated expense levels; (2) needed by BoGas, the monopoly provider of gas service, for the competitive aspects of its future activities anticipated in the newly competitive world of PBR.<sup>28</sup> *Id.*, p. 16.

The Department has in the past grappled with future test year proposals and consistently rejected such an approach for a host of well found reasons. In *Massachusetts Electric Company*, D.P.U. 136 (1980), the Department rejected, via summary disposition, the MECo future test year filing as :”patently defective in form”. This summary rejection of the Company’s filing was upheld by the Supreme Judicial Court in *Massachusetts Electric Company v. Department of Public Utilities*, 376 Mass 294 (1978).

Soon thereafter, however, in an effort mitigate the impact of regulatory lag, the Department adopted the test-year end rate base approach, in part, as a substitute for a future test year approach. *Massachusetts Electric Company*, D.P.U. 200 (1980), p. 10; see also *Policy Statements of The Commission Concerning the Adoption Of Year End Rate Base*, (1980).<sup>29</sup>

While the Department does recognize known, measurable and extraordinarily large post test year additions which would significantly alter a company's rate base or represents a sizable capital addition, the Company’s proposed additions are neither extraordinary or proportionately large. *Compare: Boston Edison Company*, D.P.U. 18515, pp. 5-7 (1976); *Boston Edison*

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<sup>28</sup> This is the “new world” of PBR and unbundled gas distribution services where supposedly the risks, rewards, costs and benefits are to be assumed solely by the Company's shareholders.

<sup>29</sup> Citing to staff and resource constraints, the Department emphasized that such a move to a future test year approach as "unfeasible". *Massachusetts Electric Company*, D.P.U. 800 (1981), p. 10, fn.. 10.

*Company*, D.P.U. 18200/18200-A, (1975); also, *Western Massachusetts Electric Company*, D.P.U. 20279 (1980). And where such post test year additions were shown to be revenue producing and/or were accompanied by other revenue generating additions, the proponent was require to recognize additional revenues as well. *Boston Edison Company*, D.P.U. 18515, pp. 5-7 (1976); *Boston Edison Company*, D.P.U. 18200 (1975), p. 17; affirmed *Boston Edison Company vs. Department of Public Utilities*, 375 Mass 1 (1978), cert. denied 439 U.S. 921.

However, the Department has consistently denied adjustments as proposed herein that are neither extraordinary in size or impact on the company, and that do not vary significantly from those completed in prior years. *Massachusetts Electric Company*, D.P.U. 800 (1981), pp. 11-12; *Western Massachusetts Electric Company*, D.P.U. 558 (1981), p. 8; *Edgartown Water Company*, D.P.U. 62 (1980), p. 3.

BoGas' proposal is asking the Department to break with precedent and recognize a group of projected expenditures that neither individually or collectively is extraordinary in size or any different than previous years expenditures. The Company does not attempt to make an argument that these are extraordinary expenditures but simply states that these additions are needed “to ensure the proper cast-off point for PBR implementation. Exh. BGC-38, p.35. The largest portion, or \$28,056,000, is budgeted level of plant replacement that has been recurring since the adoption of 220 CMR § 13.00. Exh. AG-130. Thus the request is inappropriate under well established Department precedent and should be rejected by the Department for this reason alone.

BoGas, in requesting the post test year adjustment, is also seeking to gain the advantages of utilizing the test year end rate base in this proceeding and seeking recognition of a selected,

asymmetric future test adjustments. Exh. BGC- 38, pp.11-16; BGC-39, pp. 6-7. The Company should not be allowed to receive future test-year-style rate base adjustments (an historically discarded rate setting concept) simply because it has repackaged them in a guise made up of the new terminology of “cast-off points” and PBR.

**B. Post Test Year Additions Proposal Would Constitute Double Recovery and Therefore Must Fail**

The Company's primary argument for its claim to add its post test year additions to plant is that otherwise its rate base will, in effect, be outdated before the start of its venture into PBR. Exh. BGC-38, pp.11-13 . This argument is clearly one-sided and fails to recognize past Department awards of test year end rate base and higher depreciation rates to account for the Company's pipe, meter and service replacement program. Acceptance of the Company's proposal would allow BoGas to recover test year-end rate base, extra-high depreciation rates and post test year additions recover, thus, allow double ( or triple) recovery for the same program's expenses.<sup>30</sup>

In D.P.U. 93-60, it was argued by the Company, and accepted by the Department, that higher negative salvage values were necessary to compensate the Company for plant reconstruction programs including cast iron pipe and service replacement, as well as computer programs. Exh. AG-17, ( Exh. BGC-33, *Boston Gas Company*, D.P.U. 93-60 (1993), Attachment 8 - Memo “Main Replacement Program”, dated March 26,1993 and Meters

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<sup>30</sup> Indeed, the Company participation in development of alternative pipe replacement techniques documented in a study, Exh. AG-114, Tab 20, pp. 1-5, 14, demonstrates that a number of new systems promise significant saving in this area. Savings the Company anticipates capturing for its shareholders under PBR, as is set forth in the QUEST Phase I Report. RR-AG-1, p. 143.

Account). Now the Company wants more. It seeks to be awarded its costs in what amounts to double recover from ratepayers, not only does it account for plant at test year end levels, but it seeks to add to plant levels with a future test year adjustment on top of test year end rate base and its extra high depreciation rates, already set to compensate for ARM and pipe replacement programs.

**C. Post Test Year Non-Revenue Additions Adjustment Must Be Rejected As Asymmetrical For Not Including Revenues From High-Revenue Producing Additions**

The Company's post test year nonrevenue additions adjustment must also fail because it is asymmetrical in that seeks to charge ratepayers for system-enhancing, nonrevenue producing pipe and service additions while it fails to include the other *revenue producing* pipe and service additions. Exh BGC-38, p. 5. Department precedent requires that post test year plant additions must be known, measurable and in service, and extraordinary in amount, as threshold criterion. *Massachusetts Electric Company*, D.P.U. 800, pp. 11-12 (1982); *Boston Edison Company*, D.P.U. 906, p. 16 (1982). If such a post test year addition is recognized it must be accompanied by recognition of corresponding revenues. *Boston Edison Company*, D.P.U. 18515, pp. 5-7 (1976); *Boston Edison Company*, D.P.U. 18200/18200-A, p.16 (1975). The Company's proposal, however, would allow its continued retention of the these corresponding revenues recognized as the margins on the *revenue-generating post test year additions* of mains, services and meters and neglects to fully explain the financial impacts. Exhs. BGC-44 and BGC-45.

The Company's return on its revenue generating investments provided BoGas a composite internal rate of return ("IRR") of 55.5 percent for the test year, 1995 (107.7% for

commercial and 32.5% for residential); 70.0 percent for 1994 (132.6% for commercial and 36.1% for residential) and 61.9 percent for 1993 (130.3% for commercial and 36.2% for residential). This has equated to a two year average of \$5,361,833 margins on these plant investments, with annual margins of \$5,416,353 in the test year. *Id.*

Once again, as with QUEST business opportunities and savings offsets, BoGas seeks to capture revenues for its shareholders from revenue producing investments while passing on the costs of non-revenue producing investments to the ratepayers. As stated earlier, the Company's post test year additions adjustment should be denied for failing to meet threshold requirements. However, if the Department allows them, then the adjustment must include corresponding post test year revenues. Otherwise this is an asymmetrical adjustment that improperly fails to counter balance the costs of system additions, with revenues from similar revenue producing system additions. *Boston Gas Company*, D.P.U. 18200/18200-A, p. 16 (1975); Exhs. BGC-44 and BGC-45. As a consequence, the Department must reject the BoGas proposal for this asymmetric, non-extraordinary, future test year adjustment that would add \$28,056,000 of post test year plant additions to rate base. Exh. BGC-39, p. 5.

**D. Post Test Year Meter (AMR) and Service Replacements  
Should Not be Allowed in Rate Base Because They Are Not  
Known, Measursable, Or Extraordinary In Amount**

The Company proposes to include the \$358,452 of costs associated with the estimated level of 1996 meter replacements due to the installation of Enscan or automatic meter reading devices ("AMR") considered as a post test year adjustment to rate base. Exhs. BGC-38, p. 34; BGC-39, p. 5. The Company admits its proposal fails to comport with ratesetting precedent but seeks the adjustment under the guise of a PBR castoff year adjustment. Exh. BGC-38, pp. 12-14.

The amount is neither known, measurable nor extraordinary and thus should be denied under well established Department precedent. *Massachusetts Electric Company*, D.P.U. 800 (1982).

## **VI. Cost Of Capital**

### **A. Introduction**

The cost of service includes a return on rate base which provides to the investors of the Boston Gas Company a return on the net investment that they have made in the Company. The return compensates the debt holders, preferred stockholders and the common stockholders. The dollar amount of the return is determined by multiplying the dollar amount of rate base by the overall cost rate of these different costs of capital weighted by the amount outstanding of each. The different components of the overall cost of capital will be analyzed below.

### **B. Cost Of Common Equity**

#### **1. Introduction**

The cost of the Company's common equity is not readily measurable in the manner that its costs of debt and preferred stock are.<sup>31</sup> The Company sponsored the testimony of Mr. Paul R. Moul regarding the Company's cost of common equity. Exh. BGC-56. He performed four basic analyses of the Company's cost of equity -- a Discounted Cash Flow Analysis ("DCF"), a Risk Premium Analysis, a Capital Asset Pricing Model ("CAPM") Analysis and a Comparable Earnings Analysis. *Id.* Since Boston Gas Company does not issue common stock that is publicly traded, it is impossible to determine the market cost of equity for the Company's stock using any market

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<sup>31</sup> Boston Gas Company's common stock is held by its parent corporation Eastern Enterprises.

based approaches. Therefore, Mr. Moul chose a group of companies that he deemed comparable in investment risk to Boston Gas Company and performed his cost of equity analysis on this group of companies in order to determine a cost of equity for the Company. *Id.*

As will be shown below, Mr. Moul's applications of the methodologies are fundamentally flawed. Mr. Moul's cost of equity analysis grossly overstates the Company's actual required return. As will be discussed below, corrections to these flaws in his analyses result in a cost of common equity of 9.36 percent. Therefore, the Department should use a cost rate no higher than 9.36 percent for common equity when it determines the Company's revenue requirement in this case.

## **2. Mr. Moul's Discounted Cash Flow Analysis Overstates the Comparison Group's Cost Of Common Equity**

Mr. Moul performed a DCF analysis of a group of comparison companies that he deemed were comparable to the Company in terms of their investment risk. Exh. BGC-56, pp. 3-4.

### **a. Introduction**

The economic theory underlying the application of the Discounted Cash Flow Analysis is that the market price that an investor is willing to pay for a share of common stock is equal to the present value of the cash dividends and the proceeds from the sale of the investment when the investor divests. *New England Telephone and Telegraph Company d/b/a/ NYNEX*, D.P.U. 94-50, pp. 451-452 (1995). The DCF theory can be modeled by the following equation:

$$k = \frac{D_1}{\text{-----}} + g$$

$$P_0$$

where  $k$  = the investors' required return on common equity;  
 $D_1$  = the dividend per share paid in the next period;  
 $P_0$  = the current market price per share of the common stock; and  
 $g$  = the investors' mean expected long-run growth rate in dividends paid per share.

*Id.* Some of the components to the model are more easily measured such as the current price of the stock and the current dividend being paid. However, the investors' expectations of the growth in dividends over the next year and over the rest of the investors' holding period are not directly measurable. Each of these components will be discussed below.

#### **b. The Dividend Yield**

The dividend yield component of the DCF model is based on a calculation determined by dividing the indicated dividend by the current market price.<sup>32</sup> Exh. BGC-56, p. 3 and Sched. 5. Mr. Moul's use of the spot price relative to the day a stock goes ex-dividend is not a representative price for that month. Tr. Vol. XI, p. 36. The use of spot prices to determine the DCF dividend yield has been rejected by the Department. *New England Telephone and Telegraph Company*, D.P.U. 86-33-G, p. 356 (1989); *Western Massachusetts Electric Company*, D.P.U. 84-25 (1984); *Boston Edison Company*, D.P.U. 1720 (1984). Using a dividend yield based on the information of one point in time will result in a volatile yield that will be susceptible to the peculiarities of "one day" events that might effect the market. To avoid any abnormalities

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<sup>32</sup> The indicated dividend is determined by annualizing the level of the current quarterly dividend per share being paid. This is done by multiplying the quarterly dividend paid per share by four.

associated with using "one day" information, it is appropriate to use the average of the months of high and low stock prices.

Mr. Moul provided, in his response to AG-RR-45, the most recent twelve months of dividend yield information for his comparison group's common stock, using the average of the high and low price for each month. This is the dividend yield data that the Department should use to determine the DCF cost of equity. From this information, the most recent six-month average dividend yield is 5.66 percent, while the average for the twelve-month period is 5.70 percent. *Id.* Based upon an average of these yields, a yield of 5.68 percent adjusted for the growth rate discussed below would be an appropriate basis for the dividend yield for the Department to use for the DCF analysis.

### **c. Growth Rate**

The growth rate used in the DCF model is the investors' mean expected long run growth rate in dividends paid per share. *New England Telephone and Telegraph Company*, D.P.U. 86-33-G, p. 334 (1989). Since it is impractical to measure all of the investors' expectations regarding their growth rate estimates, it is necessary to use a proxy for those expectations. These proxies include historical and forecasted measures of the dividends, earnings, and book value per share growth rates as well as the growth from retained earnings. Exh. BGC-56, pp. 3-4; AG-RR-45; DPU-RR-31; Exh. AG-76, Sched.. 6 (Updated); Exh. AG-77, Schedule 7 (Updated); Exh. AG-86; Exh. AG-87. Mr. Moul provided some of these proxies for the comparison group.

	<u>Five-Year Historical</u>	<u>Five-Year Projected</u>
Dividends Per Share	2.71%	2.43%
Earnings Per Share	3.17%	4.73% <sup>33</sup>
Book Value Per Share <sup>34</sup>	3.57%	4.29%
Growth from Retained Earnings	1.50%	4.49%

DPU-RR-31.

As Mr. Moul has done time and again, he has pulled his DCF growth rate estimate out of the air with no basis in the proxy measurements that he has available to him. Exh. BGC-56, p. 3. His growth rate estimate of 5.50 percent is 279 basis points above the historical dividend growth

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<sup>33</sup> Based on the average of the IBES, Standard & Poor's, and Value Line forecasted earnings figures from DPU-RR-31.

<sup>34</sup> Book value per share figures were derived from the data provided in the Value Line Investment Surveys.

<u>Company</u>	<u>Historical</u>	<u>Projected</u>
Bay State Gas Company	5.0%	6.50%
Connecticut Energy Corp.	3.5	3.00
Connecticut Natural Gas	3.5	3.00
Indiana Energy, Inc.	6.5	4.50
Laclede Gas Company	1.5	3.00
New Jersey Resources Corp	2.0	5.50
Washington Gas Light Co.	<u>3.0</u>	<u>5.00</u>
Average	<u>3.57%</u>	<u>4.36%</u>

Source: *Value Line Investment Survey*, Exh. AG-86; Exh. AG-87.

rate and 307 basis points above any projected dividend growth rate of the comparison group. *Id.*; DPU-RR-31.

The Department has found that the appropriate growth rate proxy to employ for the DCF analysis of the comparison group is the growth from retained earnings. *Boston Edison Company*, D.P.U. 1720 p. 102 (1984); *Western Massachusetts Electric Company*, D.P.U. 84-25, p. 163 (1984). The growth from retained earnings balances the earnings per share and the dividends per share growth rates. *Id.*

Mr. Moul did provide updated growth from retained earnings information in relation to his comparison group. The five-year historical average of the growth from retained earnings for Mr. Moul's comparison group was 1.50 percent. DPU-RR-31. The forecasted growth from retained earning for the group is 4.49 percent. DPU-RR-31, Sched.7 (Updated). Therefore, one estimate of the DCF growth rate for Mr. Moul's comparison group is 3.00 percent, the average of the historical and forecasted growth rates from retained earnings.

The Department also gives weight to investment analysts' consensus forecasts of earnings per share. *New England Telephone and Telegraph Company*, D.P.U. 86-33-G, p.356 (1989). Mr. Moul provided an updated average forecasted, five-year earnings per share growth rate for the comparison group as of August 1996. DPU-RR-31. The average growth rate for the group is 4.16 percent. *Id.*<sup>35</sup>

The Department's preferred methodologies for determining the growth rate create a reasonable range of DCF growth rate estimates for the barometer group in this case. The average

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<sup>35</sup> This amount was calculated as the average of the S&P Earnings per Share and the IBES Mean  $((4.29 + 4.03) / 2)$ . DPU-RR-31.

of the growth from retained earnings measure of 3.00 percent and the analysts earnings per share forecasts of 4.16 percent, creates this range. A reasonable estimate from this range is the midpoint, or 3.58 percent.

**d. DCF Summary For Mr. Moul's  
Group Of Comparison Companies**

As was discussed in the dividend yield section above, an appropriate proxy for the current dividend yield based on the latest information available is 5.68 percent. An appropriate growth rate is 3.58 percent, the midpoint of the range of growth rate expectations. Using these parameters, a DCF cost of common equity can be determined:

	Growth Rate <u>at 3.58%</u>
Current Dividend Yield	5.68%
	_____
DCF Dividend Yield ( $5.68\% \times (1 + (.5 \times 3.58\%))$ )	5.78%
Plus: Dividend Growth Rate	<u>3.58%</u>
DCF Cost Of Common Equity	<u>9.36%</u>

This result for Mr. Moul's comparison group indicates that the DCF cost of equity estimate of 9.36 percent is a reasonable estimate of the cost of equity for the comparison group.

**3. Mr. Moul's Capital Asset Pricing Model Analysis  
Must Be Rejected By The Department Because  
Of Its Many Flaws**

Mr. Moul performed a Capital Asset Pricing Model ("CAPM") analysis to attempt to estimate the cost of equity for his comparison group. Exh. BGC-56, pp. 5-6. The Department should reject Mr. Moul's CAPM analysis not only based on the many flaws in his application of the model in this case, but also for the reason that the assumptions underlying the CAPM depart so substantially from the real world that they make the model totally useless for purposes of determining the cost of common equity for a utility company.

**a. Introduction**

The CAPM is a risk premium approach used to determine the cost of assets. Like other risk premium approaches, it is based on the assumption that investors require a higher return on their investment for them to hold assets of greater risk. *Boston Gas Company*, D.P.U. 93-60, pp. 257-260 (1993). The CAPM approach breaks the total risk of an asset into two components, systematic risk and unsystematic risk. *Id.* Systematic risk represents the variability of the return on an investment associated with the effect of economy-wide forces (e.g. inflation and interest rate levels). *Id.* Unsystematic risk, on the other hand, represents the risk associated with asset specific risks (e.g. risks that are specific to a particular company like industry competition and the quality of a company's management). *Id.* Portfolio theory assumes that an asset is evaluated in the context of a well-diversified portfolio where the unsystematic risks associated with individual assets cancel each other out. *Id.* Under that same theory, since the unsystematic can be diversified away by holding a well diversified portfolio, the only risk that the CAPM model user should be concerned with is the amount of systematic risk associated with the asset. *Id.*

The CAPM measures the systematic risk of an asset with a factor known as beta. *Id.*, pp.

251-253. The Model defines the beta value of all assets, on average, as equal to 1.0. In the Model, an asset with a beta of 1.0 will have a return which will have variations equal to the variability of the returns of the market as a whole. The price of an asset with a beta of 1.0 will increase by 10 percent when the market value as a whole increases 10 percent. Conversely, the asset's price will decrease 10 percent when the market value goes down 10 percent. Furthermore, the price of an asset with a beta of 1.5 will increase 15 percent when the market increases by 10 percent and decrease 15 percent when the market decreases 10 percent. If the beta is 0.5, the asset's price will increase by 5 percent when the market increases 10 percent and it will decrease by 5 percent when the market decreases by 10 percent.

The CAPM theory provides a formula to determine the return on the asset that is required by the market. *Id.*, pp. 251-253; Exh. BGC-56, p. 6. The formula is as follows:

$$k = R_f + b \times (R_m - R_f)$$

where       $R_f$       = the return on risk-free investments;  
               $b$          = the beta of the asset; and  
               $(R_m - R_f)$  = the market premium.

*Id.* This is the formula that Mr. Moul used to do his CAPM analysis in this case.

**b.      The Assumptions Underlying The  
Capital Asset Pricing Model Are  
So Unrealistic That The Model  
Cannot Be Used To Determine the  
Cost Of Capital For The Company**

The CAPM theory and the formula derived from that theory are based on many assumptions, as will be discussed below. Although some of these underlying assumptions of the

CAPM are true in the real world, several of them just do not hold true for the application of the model in the case of an investment in the comparison group's common stock. Without these assumptions that are fundamental to the CAPM model, the use of the model is inappropriate, and must be rejected by the Department.

The Department has found that the assumptions underlying the CAPM are too "heroic" to make the application for a utility stock useful. *Commonwealth Electric Company*, D.P.U. 956, pp. 54-55 (1982). *Cambridge Electric Company*, D.P.U. 1015, p. 46 (1982); *Commonwealth Gas Company*, D.P.U. 1120, pp. 71-72 (1982). Specifically, the Department found in *Commonwealth Electric Company* that the following assumptions are too unrealistic for anyone to seriously consider:

- (1) investors can borrow and lend an *unlimited* amount of money at a risk-free rate;
- (2) investors evaluate alternative equity/security portfolios according to the means and standard deviations of portfolio returns;
- (3) there are *no* income taxes; and
- (4) investors are "single period expected utility of terminal wealth maximizers" -- that is, a 100 percent liquidating dividend is paid at the end of the period.

*Id.* at 54 [emphasis added]. Clearly, the assumptions of a world with unlimited investor borrowing capacity and no income taxes is one that investors would find highly desirable, but simply does not exist. Furthermore, the assumptions try to fit all investors into one neat package to conform to the Model requirements. The requirements that investors evaluate their portfolios according to portfolio returns and liquidate their investments at the end of a holding period obviously cannot contain the many different investors with many different analysis techniques and investment requirements into one model. Mr. Moul's analysis never attempts to address any of these fundamental problems with these assumptions of the Model. For this reason alone, the

Department should reject the use of the CAPM analysis as a methodology for determining the cost of equity for utilities as it has done in the past.

**c. Mr. Moul's Application Of The  
Capital Asset Pricing Model Is  
Fundamentally Flawed**

Notwithstanding the arguments made above regarding the unrealistic assumptions of the CAPM theory itself, Mr. Moul's application of the model in this case is fundamentally flawed. The CAPM formula requires that one determine a market risk premium, a beta, and a risk-free rate. As will be discussed below, the measures that Mr. Moul uses for each of these parameters are seriously flawed, causing the results of his analysis to be meaningless.

**(1) The Market Premium**

The market risk premium that Mr. Moul uses is based on a historical equity risk premium based on information from the last 69 years. This data was derived from the Ibbotson Associates study *Stocks, Bonds, Bills, and Inflation*. Exh. BGC-56, Sched. 10. It was determined by simply subtracting the earned return on the Standard & Poor's 500 stock index for the period 1928 through 1995 from the earned return on long-term government bonds for the same period.<sup>36</sup>

The fundamental problem with the use of the Ibbotson Associates data is that there has never been any showing before this Department that the historical returns from as long ago as

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<sup>36</sup> This is another serious flaw in Mr. Moul's application of the CAPM theory. The CAPM theory is based on the assumption that the market is for all capital assets that one can invest in, including not only U.S. stock investments, but also investments in bonds, real estate, certificates of deposits, art, commodities, etc., in the U.S. as well as overseas. Thus, the assumption that the market can be represented by only the U.S. stock market is another significant departure from the CAPM theory that renders Mr. Moul's application useless.

1928 represent the current expectations of investors who were not even born in 1928. It is difficult to believe that investors consider the effects of Great Depression and World War II to be periodically recurring events. Furthermore, the recent changes in the inflation rates and the bond market have caused fundamental changes in the way that investors analyze bonds causing them to view bonds as much riskier investments than they have in the past. The Department should again reject the use of an equity risk premium that is based on this old, meaningless data.

## **(2) The Beta**

The beta for Mr. Moul's comparison group of 0.55 that he uses in his CAPM formula is derived from the average of the *Value Line Investment Survey* which reports a beta of 0.59 and the *Merrill Lynch Security Risk Evaluation* which reports an adjusted beta of 0.51. Exh. AG-79, Sched. 10 (Updated), p. 1. However, there are still other measures of beta that investors have available to them. The use of the other betas, of course, will lead to different CAPM results.

There is, however, a fundamental flaw with the use of beta to determine the cost of equity for Mr. Moul's comparison group in this case. The beta that Mr. Moul uses only explains three percent of the variation of the price of the group's stock. Exh. BGC-56, Sched. 2, p. 2. Thus, more than 97 percent of the variation in its stock price remains unexplained by the CAPM formula. The Department has found that this significant deficiency in beta causes it to be useless for determining a company's cost of equity. See for instance *Cambridge Electric Company*, D.P.U. 92-250, p. 158 (1993); *Colonial Gas Company*, D.P.U. 84-94, pp. 63-64 (1984) citing *Berkshire Gas Company*, D.P.U. 1490, pp. 74-75 (1983). Mr. Moul has provided no new evidence in this case that should cause the Department to change this well-founded precedent.

### **(3) Zero-Beta Analysis**

Mr. Moul inflated his CAPM results by performing a so-called zero-beta analysis. Exh.

BGC-56, p. 6. The formula used by Mr. Moul in performing his zero-beta analysis is as follows:

$$k = R_z + b (R_m - R_z)$$

where  $R_z$  = the return on a portfolio with a zero-beta;  
 $b$  = the beta of the asset; and  
 $(R_m - R_z)$  = the market premium.

*Id.* Mr. Moul's zero-beta analysis is so subjective in the development of the zero-beta risk free rate and market premiums that the results are meaningless. More specifically, in determining the split of the market premium between the zero-beta debt instrument and the equity premium, Mr. Moul could have found returns anywhere from 10.33 percent to 13.67 percent to be reasonable simply based on his guesstimate of the split.<sup>37</sup> Exh. BGC-56, p. 6; Tr. Vol. XI, pp. 24-27. This type of subjectivity should not be the basis for a cost of equity analysis and should therefore be rejected by the Department.

### **(4) Small Capitalization CAPM Adjustment**

The Department should reject Mr. Moul's small capitalization adjustment to his CAPM analysis. Mr. Moul adjusted his CAPM results by adding a premium to compensate for the

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<sup>37</sup> Based on Mr. Moul's statement that he could have assigned a different weighting, he therefore could have found the following returns:  $(6.25\% + 7.42\%) + .55 (0\%) = 13.67\%$ , assuming 100% of market premium assigned to the zero-beta portfolio, or  $R_z$ ; or  $6.25\% + .55 (7.42\%) = 10.33$ , assuming 100% of market premium assigned to the adjusted systematic risk of the Barometer Group, or  $(R_m - R_z)$ . Exh. BGC-56, p. 6; Tr. Vol. XI, pp. 24-27.

CAPM's understatement of the cost of equity for small capitalization stocks. The problem with this adjustment is that the components to this CAPM are adjusted to correct for some of the problems that the small capitalization adjustment compensates for. The small capitalization adjustment is calculated as the difference between the actual return and the return determined by the standard unadjusted CAPM model using unadjusted betas. AG-RR-43. Using this adjustment should in theory correct for all the infirmities of the CAPM. The adjustment to each company's beta and the use of the zero-beta become redundant modifications to the CAPM, causing the results to be grossly overstated.

#### **(5) The Risk-Free Rate**

Mr. Moul's proxy for the risk-free rate is fundamentally flawed. The risk-free rate that Mr. Moul uses in his CAPM analysis is based on the return on long-term U.S. Treasury bonds. Exh. BGC-56, pp. 2-4. Of course, government bonds are not risk-free securities since there is a maturity risk premium incorporated in the expected return associated with the term of the bond. *See, Cambridge Electric Company*, D.P.U. 92-250, p. 158 (1993). The correct proxy to use for the risk-free rate is U.S. Treasury bills. *Id.* They do not have the maturity risk associated with them that U.S. Treasury bonds do.

#### **d. Summary**

The CAPM analysis presented by Mr. Moul is flawed by his failure to even address the many inherent problems that the Department has found with the assumptions that underlie the

theory. Furthermore, his choice of proxies for the different parameters of the CAPM formula are so defective that the results of analysis are meaningless. *Id.*

The Department has recognized that the CAPM that Mr. Moul employs is unusable in the real world for determining the cost of common equity. *Boston Gas Company*, D.P.U. 93-60, pp. 256-257; *Massachusetts Electric Company*, D.P.U. 92-78, p. 113 (1992); *Boston Gas Company*, D.P.U. 88-67, Phase I, p. 184 (1988); *Colonial Gas Company*, D.P.U. 84-94, pp. 63-64 (1984). Furthermore, as Mr. Moul goes through his analysis, he makes adjustment after adjustment to the model attempting to make corrections for certain problems that he identifies. However, he never corrects for the problems identified by the Department. His adjustments, each raising the cost of equity, overlap, resulting in a significant overstatement of the cost of capital.

For all the reasons discussed in this section, the Department should again reject Mr. Moul's CAPM analysis in total. *Boston Gas Company*, D.P.U. 93-60, pp. 256-257 (1993); *Cambridge Electric Company*, D.P.U. 92-250, p. 158 (1993); *Bay State Gas Company*, D.P.U. 92-111, pp. 275-276 (1992); *Massachusetts Electric Company*, D.P.U. 92-78, p.113 (1992); *Boston Gas Company*, D.P.U. 88-67, Phase I, p. 184 (1988); *Colonial Gas Company*, D.P.U. 84-94, pp. 63-64 (1984).

#### **4. Mr. Moul's Risk Premium Analysis Has Many Of The Same Flaws As His CAPM Analysis**

Mr. Moul performed another risk premium analysis. Exh. BGC-56, pp. 4-5. Although he presents this methodology as a separate and distinct analysis from the CAPM analysis, it is essentially the same analysis. The risk premium analysis is the same as his CAPM analysis except

that he substitutes U.S. Corporate bonds for U.S. Treasury bonds as the debt basis of the analysis. He again uses beta. He again uses the Ibbotson Associates 69-year historical earned returns. Because these methodologies are so similar, they will, of course, have the same inherent theoretical problems --the use of long-term corporate bonds will not revive the analysis from these many fatal flaws. For the same reasons discussed above in the CAPM section of the Attorney General's Brief, the Department should reject Mr. Moul's risk premium analysis which is based on long-term corporate bonds. *Boston Gas Company*, D.P.U. 93-60, pp. 261-262 (1993); *Cambridge Electric Company*, D.P.U. 92-250, p. 152 (1993); *Bay State Gas Company*, D.P.U. 92-111, pp. 265-266 (1992); *Berkshire Gas Company*, D.P.U. 90-121, p.171 (1990); *Boston Gas Company*, D.P.U. 88-67, Phase I, p. 182-184 (1988).

##### **5. Mr. Moul's Comparable Earnings Analysis Should Be Rejected By The Department**

Mr. Moul also performed a comparable earnings analysis. He based his comparable earnings analysis on three stock indicators used by Value Line. The use of the Comparable Earnings approach has been resoundingly rejected by the Department time and time again. *Boston Gas Company*, D.P.U. 93-60, pp. 265-266 (1993); *Cambridge Electric Company*, D.P.U. 92-250, p. 160-161 (1993); *Bay State Gas Company*, D.P.U. 92-111, pp. 280-281 (1992); *Berkshire Gas Company*, D.P.U. 905, pp. 48-49 (1982). For instance in *Berkshire Gas Company*, D.P.U. 905, the Department specifically rejected Mr. Moul's use of the Comparable Earnings approach because it found the results unreliable since the earned return on common equity did not necessarily equal the companies' cost of capital. *Berkshire Gas Company*, D.P.U. 905, pp. 48-49 (1982) citing *Boston Edison Company*, D.P.U. 19991, p. 56 (1979). Mr. Moul has provided no

reason in this case for the Department to change its well founded precedent. Therefore, the Department should reject Mr. Moul's Comparable Earnings analysis since its results are unreliable.

Notwithstanding the above arguments, Mr. Moul's Comparable Earnings should be rejected because of his choice of comparison indicators. While Mr. Moul uses three published indicators of investment risk, he has ignored two important indicators of investment risk -- Price Growth Performance, and Earnings Predictability. Clearly, the stock price and the earnings stability are important Value Line risk indicators that a stock investor would consider. Yet, Mr. Moul overlooks them in his analysis. Without their consideration, the comparability of the other companies that he chooses are, at best, questionable, and potentially totally inappropriate since none of the Company's considered are regulated monopolies.

## **6. Recommendation**

Mr. Moul's cost of equity analysis vastly overstates the cost of common equity for the comparison group of companies. As has been discussed in the above sections, Mr. Moul's CAPM, comparable earnings and risk premium analyses should be rejected by the Department. His DCF analysis can be resurrected however to allow for an estimate of the cost of common equity for his comparison group. The results of the DCF cost of equity of 9.36 percent for Mr. Moul's barometer group of comparison companies that were discussed above provide a reasonable allowed return on common equity for the Company. Thus, the Attorney General recommends that the Department use a return of 9.36 percent as the allowed rate of return on common equity for the Company in this case.

## **VII. Revenue And Cost Of Service Adjustments**

### **A. Bad Debt Adjustment**

#### **1. The Company's Bad Debt Adjustment Should Be Apportioned Between Base Rates and Gas Costs (CGAC)**

The Company, as part of its unbundling strategy, proposes to exit the merchant function for C&I customers as of the effective date of this filing. Exh. BGC-1. It anticipates that the process of converting all of its C&I customers to transportation will take approximately 2 years. *Id.* As a continuing strategy BoGas states that as it also intends, if approved by the Department, to stop selling gas to residential customers by the turn of the century. *Id.*

Notwithstanding its proposed exit strategy, BoGas seeks to recover its full test year level of bad debt over the next five years based upon traditional recovery protocols. Exh. BGC-39, p. 23. This encompasses a level of revenues which includes gas costs as, by far, the largest single item in its cost of service. *Id.*, p. 1. BoGas has neither made, nor proposes to make, an adjustment in recognition of the fact that its gas cost revenues will, under its own proposal to exit the merchant function, be progressively decreasing to virtually zero by the year 2001. Exh. BGC-1, p. 6; Tr. XIII, p. 129. Using the bad debt level proposed in this case, 2.22% (Exh. BGC-39, p. 23.), the level of bad debt attributable to gas costs would amount to \$8,329,500 based upon gas costs of \$375,202,673. *Id.*, p.1. That would constitute a progressive reduction in bad debt allowance levels from \$13,927,610 , as proposed in this case to \$5,598,111 by the year 2,000. *Id.*, p. 23; Exh. BGC-1, p. 6. .

If the Department allows the Company to proceed with its plan to exit the merchant

function, the Department must require the Company to reduce its bad debt levels by the amount of gas costs associated with firm sales levels to C&I customers. Further, the Department must require a progressive change in the Company's bad debt allowance at the time of its annual PBR filing or at such times as the Department determines that BoGas must submit its annual compliance filing under its PBR proposal.

In the alternative, or as a tracking methodology, the Department should direct the Company to allocate its bad debt allowance between its CGAC and base rates. Such a change should, at a minimum, start with a separation of the bad debt allowance as it relates to gas cost revenues and transportation revenues. Although the Company has, under Attorney General questioning, stated that such a division of revenues would not be simple or easily administered, given the magnitude of the ratepayer costs involved, such a separation should be ordered, thereby keeping the bad debt element relating to transportation costs in the base rates and that relating to gas costs into the CGAC. Thereafter, a reduction in yearly levels of gas sales and the CGAC can reflect the lower incidence of bad debt allowance related to those revenues.

**2. BoGas' Bad Debt Calculation Does Not Conform With Department Precedent And Must Be Rejected**

The Company's calculation of its pro form bad debt expense does not conform with precedent and should be rejected by the Department. Exh. BGC-39, p. 23. The Department's precedent determines the pro forma bad debt expense by first calculating the weighted average ratio of the last three year's net-write-offs to the firm revenues for those same three years. *Boston Edison Company*, D.P.U. 1720, pp. 27-28 (1984). This average ratio of net-write-offs to

revenues is then multiplied by the pro forma firm revenues to determine the bad debt expense allowed in rates. *Id.* The Company's calculations in this case do not conform with this precedent.

The Company has lagged its revenues one year behind the year of the net write-offs. Exh. BGC-39, p.23. The Company's calculation use the net write-offs for the years ended December 31, 1993, 1994, and 1995 and compares them to the firm revenues for the years ended December 31, 1992, 1993, and 1994 respectively. *Id.* This lagged revenue approach causes a misstatement of the expected write-offs in the rate year.

The Department should deny the Company proposed approach for two reasons. First, this lagged approach does not conform with Department precedent regarding bad debt expense. *Boston Edison Company*, D.P.U. 1720, pp. 27-28 (1984). Second, pro forma revenue requirement is supposed to reflect the expected cost of the rate year. The Company's methodology using a lagged net write-off ratio causes a mismatch in revenues and expenses, determining a cost amount for a period after the rate year rather than for the twelve months of the rate year itself. Therefore, the Department should deny the Company's pro forma bad debt expense adjustment.

The Company might argue that the Department specifically approved this same lagged approach in its last base rate case, *Boston Gas Company*, D.P.U. 93-60, pp. 152-154 (1993). However, it is clear from the statement of the Company's position in the order that it was neither the intent or the purpose of the Department to approve such a sea change in methodology as the Company proposes in this case. The language in the order is as follows:

The Company calculated its uncollectible expense by determine the three-year weighted average of net write-offs *as a percentage of firm retail revenues for the*

*corresponding period*, and multiplying the resulting percentage by the normalized test year revenues.

*Id.*, p. 152 [Emphasis added]. This language follows that used in the many other orders that established the bad debt expense as well as the associated calculations used by the Department. See *Boston Edison Company*, D.P.U. 1720, pp. 27-28 (1984); *Western Massachusetts Electric Company*, D.P.U. 1300, pp. 53-54 (1983); *Boston Gas Company*, D.P.U. 1100, p. 83 (1982). Furthermore, in D.P.U. 93-60, the Department never addressed in any other statements or analyses the Company's determination of the write-offs ratio using this lag technique. Without an express statement or analysis by the Department of this proposed sea change in the methodology, the Company cannot use this order as precedent supporting its pro forma bad debt expense in this case.

The Department should reject the Company's proposed net write-off ratio using the lagged revenue approach. Instead, it should employ its standard methodology using the three-year average of coincident years of data. *Id.* The Company set forth the necessary data to calculate the ratio in Exhibits AG-193 and BGC-39, p. 23 :

Year Ending	Net	Firm
<u>December 31</u>	<u>Write-Offs</u>	<u>Revenues</u>
1993	\$10,521,279	\$577,691,816
1994	13,449,045	618,524,496
1995	<u>14,730,732</u>	<u>602,823,565</u>
TOTAL	<u>\$38,701,056</u>	<u>\$1,799,039,877</u>

**NET WRITE-OFFS TO FIRM REVENUES RATIO = 2.15%**

The corrected calculation reduces the write-off ratio to 2.15 percent. This is the ratio that the Department should use to determine the pro forma bad debt expense.

**3. The Company "Correction" To Its Bad Debt Expense Should Be Rejected By The Department**

The Department should deny the Company's adjustment to bad debt expense for non-gas services. The Company made a "correction" to its prefiled cost of service to change the bad debt expense it recorded during the test year in this case. See Exh. BGC-39, p.23 and Exh. BGC-63, p. 23. It "corrected" the test year bad debt for the gas distribution to eliminate the expense associated with other, non-gas services. Tr. 15, pp. 27-28. This single adjustment cost the ratepayers \$540,000 ( \$14,500,000 - \$13,960,000 ). *Id.* The "correction" was made by the Company's witness with no additional evidence. *Id.* There is no proof that the number existed on the Company's books nor are there any calculations determining the new number. *Id.*

The record indicates that the total bad debt expense for the Company that was booked

during the test year was \$14,500,000. See Boston Gas Company Annual Return to the Department for 1995, p. 47. This amount represents 2.22 percent of the Company's total operating revenues during the test year. (  $\$14,500,000 / \$653,073,094$  ). Exh. BGC-39, p. 1. Ms. Kelly testified that the Company does *not* keep subaccounts of its bad debt expense separating gas bad debt from non-gas service bad debt. Tr. 21, p. 68. She also testified that the Company does not accrue its bad debt expense on a service by service but rather on the basis of total accounts receivable including both gas distribution service as well as other services. *Id.*, pp. 66-67. However, without any support for her adjustment, no discussion, calculations, or workpapers, she simply assigns \$540,000 of the bad debt expense for the non-gas services.

The assignment of an amount of bad debt to the non-gas service is clearly appropriate.<sup>38</sup> However, in this case the amount that the Company has appropriated is not only unsupported in the record, but also clearly excessive. First, the \$540,000 amount that Ms. Kelly assigned to non-gas services represents approximately 7.8 percent of test year non-gas service revenues, more than three times the rate for the gas distribution business (  $\$540,000 / \$6,916,516$  ). Exh. AG-RR-57. She offered no explanation for this enormous difference. Second, given the fact that a substantial portion of the non-gas services are billed on the same invoice as the Company's gas distribution services, it would be practically impossible to separate the bad debt information for each business. Tr. 21, p. 71. Clearly, the Company's change to its test year bad debt expense is excessive and unsupported in the record.

The Department should allocate the \$14,500,000 of test year bad debt expense to the gas

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<sup>38</sup> The pro forma bad debt expense allowed in the Company's revenue requirement is based upon the firm gas distribution revenues of the Company.

and non-gas services according to the test year revenues associated with each. Since the bad debt rate for both of the services was 2.22 percent of revenues during the year, each business should be assigned a share of the test year revenues proportional to its test year revenues. The test year revenues associated with non-gas services was \$6,916,516. Exh. AG-RR-57. Therefore, 1.06 percent or \$153,565 of the test year bad debt expense should be assigned to the non-gas service business. (  $\$14,500,000 \times \$7,000,000 / \$653,073,094$  ). Exh. BGC-39, p. 1. Therefore, the correct amount of test year bad debt expense associated with the gas distribution business is \$14,344,581. (  $\$14,500,000 - \$155,419$  ). This is the *test year* amount that the Department should recognize when determining the pro forma bad debt expense for the Company in this case.

**B. The Company's Depreciation Accrual Rate Should Be Adjusted To Reflect Changes In Expected Useful Life Of Certain Plant**

Although the Company does not seek an adjustment in its depreciation accrual rate, recognized as one of the highest in the Country, the Department should order a reduction. Tr. II, p. 57. As noted in D.P.U. 93-60, at page 188, the Attorney General argued that the useful life estimate for the Company's Commercial Point LNG/propane facilities should be extended an additional 10 years to reflect the actual life expectancy, i.e., the economic life, of the facility. The Department denied the proposed change in the Company's retirement date for the facilities citing a lack of evidence. The Attorney General renews that recommendation herein.

In the present proceeding the Company has proposed to assume control of the Commercial Point facilities on or about the year 2001, and from thereon operate the plant for the

benefit of its shareholders.<sup>39</sup> No less than the BoGas President is on record as stating that the Commercial Point facility has a number of years of valuable service remaining beyond the year 2001. Tr. I, p. 120. The record in the present proceeding clearly supports the proposition that a number of years of useful life is in front of the Commercial Point facilities. Thus the Department should extend the life of the Company's Commercial Point facilities for an additional 10 years and direct the Company to rerun its 1993 depreciation study to account for this extension of useful life.

**C. Salem Tank Repairs Amortization Amount Must Be Removed From Cost Of Service**

The Company acknowledges that the test year cost of service includes the 1995 unamortized balance of \$149,857, for the amortization of the tank repair costs for its Salem LNG storage facility. Exh. AG-142, p. 6, Acct.118-109. The amortization amount \$102,430 and amortization period was approved in *Boston Gas Company*, D.P.U. 88-67 , p. 145 (1988). The Department considers tank repair expense to be a periodically recurring and therefore normalizes the expense within the test year a set period of years. *Id.*, p. 133; *Fitchburg Gas and Electric Company*, D.P.U. 1270/1414, p. 37 (1982).

The Company also acknowledges that in 1996 the repair costs will be fully amortized.

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<sup>39</sup> This proposal, for the Company to assume ownership and control of the Commercial Point facilities with no compensation to its ratepayers just when it becomes fully depreciated, should be summarily rejected by the Department. However, it points out the fact that these facilities, as one of only two downstream capacity operations (the other being DOMAC), will continue to be a valuable asset (if not an even more valuable asset/service) in providing firm gas service behind BoGas' city gate.

Exh. AG-142, p. 6. This is a known and measurable change to test year expense level. As such, the amount of \$149,857 should be removed from the Company's cost of service. *Id.*

**D. The Department Should Reduce BoGas' Test Year Expenses To Reflect The Fully Amortized Boston Property Tax Adjustment**

The Company has included in its test year cost of service the amount of \$333,000 to reflect an amount of property taxes due the City of Boston as a result of a 1993 settlement with the City. Exh. AG-51; *Boston Gas Company*, D.P.U. 93-60, pp. 216-218 (1993). The Department allowed the Company to amortize the \$1 million payment over three years beginning with the rates established on November 1, 1993. *Id.*, p. 218. The final payment under that settlement is due to be made in October, 1996. Tr. VIII, p. 119. As such this amount constitutes a fully amortized expense and should be removed from the test year as a known and measurable change to the test year cost of service. *Fitchburg Gas and Electric Company*, D.P.U. 1270/1414, p. 33 (1993). Thus the amount of \$333,000 should be stricken from the test year cost of service due to the fact that this expense is fully amortized and hence, nonrecurring.

**E. The Company's Weather Related Overtime Adjustment Is Speculative And More Consistent With Its Downsizing**

The Company seeks to supplement test year expenses by \$2,516,842 to account for what it claims to be an abnormally low level of employee overtime hours billed during the test year. Exh BGC-38, p. 16. BoGas claims that employee overtime is solely weather sensitive and because the *first quarter* of the test year was warmer than normal, overtime hours were down. *Id.*, p. 48. BoGas proposes substituting a five year average level of claimed overtime for the test

year level. *Id.*, p. 49.

This proposed adjustment is based on unfounded speculation, *i.e.*, that a single quarter of warm weather was the reason for the 1995 overtime reduction. In fact the test year turned out to be colder than normal. Exh. BGC-99. The Company's explanation is speculative, based upon conjecture and provides neither a full or accurate explanation for the decrease. Indeed significant questions remain unanswered such as: Given normal first quarter weather, how much overtime is the result of capitalizable expenditures?

The Company has made much about its reengineering efforts that occurred during the test year. Tr. XII, pp. 147 & 173. By the Company's own admission these efforts included a substantial reduction in its workforce and introduction of a number of productivity enhancements Exh. BGC-38 ,pp. 25-30. Both such efforts would, by their nature, have a dampening effect on overtime.<sup>40</sup> The proposed adjustment should be denied as speculative and unsupported by any direct, credible evidence.

This adjustment to overtime expense levels seeks to "capture" apparent employee productivity gains for the shareholders, at ratepayer expense. The Company seeks to have ratepayers pay the costs of the Company's downsizing through enhanced pension and severance offsets (see, Exh. BGC-39, p. 27 ). Now the Company is attempting to capture clearly related overtime savings, on a prospective basis. The Department must not be persuaded by the Company's efforts to mischaracterize this trend in reduced overtime that can be more likely attributed to ratepayer financed downsizing, reduced employee levels and efficiency

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<sup>40</sup> Indeed, it would not be prudent, or even make good economic sense, to reduce numbers of employees, simply to have their former duties performed by remaining employees at overtime wage rates.

enhancements.

**F. The Department Should Sanction BoGas For Its Poor Service Quality Revenue And Reduce Its Revenue Deficiency By The Company's By A Three Year Average Of Its Billing Abatements**

The Attorney General has set forth in detail, in Section IV., *supra.*, a proposal to penalize the Company for its consistent failure to perform customer service under the Department's Billing and Termination Regulations, 220 CMR 25.00, within reasonably acceptable levels of quality. In *Boston Gas Company*, D.P.U. 93-60, p.10 (1993), the Department warned of an investigation and possible sanctions if Department complaint statistics did not improve. The Company's response was to go out and post new gas company records for most complaints and billing abatements in the two years following the D.P.U. 93-60 warnings. Exh. AG-112, DPU Consumer Division Statistics Reports, 1993, 1994 and 1995.

In light of the continued poor Company performance in dealing with customer inquiries, the Department should act. The Attorney General's recommends that the Department impose a sanction against the Company by adding to its pro forma revenues an amount equal to BoGas' gas industry leading, three year average bill abatement level (representing the revenues that the Company would have collected had it dealt with its customers fairly and in a manner consistent with Department regulations), or \$169,606<sup>41</sup>.

**G. Unrefilled Employee Positions Adjustment Should Be Reduced By The Positions That Have Not Been Refilled**

The Company asserts that 22 positions were not included in the QUEST savings because

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<sup>41</sup> In addition, if the Department allows a PBR scheme for the Company, it should adopt the Attorney General's recommendations for structuring an SQI.

they were positions necessary to its operations. Exh. BGC-38, p.27. Contrary to Company claims, all of these 22 positions have not been refilled as of July, 1996. RR-AG-2 In fact only 10 out a total of 27 openings had been filled as of July, 1996. *Id.* The Company has failed to support its rationale for excluding the positions that remain unfilled and its argument is mere speculation. The fact that these positions have stayed unfilled through out two of the Company's busiest time periods; (1) a full heating season and (2) a Company reengineering/downsizing and at a time when this and a series of other regulatory filings were being prepared demonstrates these positions are not needed.

The Department has recognized that employee levels routinely fluctuate because of retirements, resignations, dismissals, hiring of new employees and other factors. *Fitchburg Gas and Electric Company*, D.P.U. 1270/1414, pp. 16-17 (1983). The Department has found that, given the normal fluctuations, it is more appropriate to determine wage and salary expenses on the basis of test year end employee levels. *Oxford Water Company*, D.P.U. 88-171, p. 8 (1989). Thus it is clear that the Company's adjustment relating to these unfilled positions should not be allowed. It is mere speculation and not a known and measurable change. The \$950,000 in savings from the termination of these positions should reduce the test year wage and salary expenses (Exh. BGC-39, p. 15) and the 1995 and 1996 savings relating to these positions should also be combined with other to the QUEST savings experienced by the Company and used to offset allowed QUEST costs. See, also Section III, C, *supra*.

**H. Company Should Be Required To Use A Straight 20-Year Moving Average Of Effective Heating Degree Days In Calculating Its Weather Normalization Adjustment**

The Company calculated its weather normalization adjustment based on an average of 20 years of effective heating degree day (“HDD”) data that has been statistically smoothed. Exhs. BGC-97, p. 2, and BGC-114. In the past, the Company used a “straight” 20-year moving average of HDD. *Boston Gas Company*, D.P.U. 93-60, pp. 69, 78 (1993). As proposed by the Company, the smoothing technique considers the minimum and maximum temperatures for a given day over a 20-year period, but also considers temperatures for the 5 days preceding and following the given day. Exh. BGC-103. The Company’s witness, Samir Mishra, purported that this method is preferable because the HDD product is a more stable measure of weather effects than the traditional 20-year moving average. Tr. VI, p. 65. He also stated that under the smoothing method, the Company proposes to hold the level of normal HDD constant during the 5-year period the performance based rates (“PBR”) would be in effect. *Id.*, pp. 61-62.

The Company provided the HDD based on the traditional 20-year moving average and compared it to the smoothed HDD. Exh. AG-20. The difference between the two methods is a total of 15 HDD, or .27 percent. *Id.* The Company also provided the weather normalizing adjustment based on the traditional 20-year moving average, as well as the corresponding normal throughput. Exh. AG-257. The 20-year moving average would result in a revenue adjustment of \$502, 531, an increase of \$194,642 to the amount proposed by the Company using the smoothing method, and a throughput of 1,169,749 therms, an increase of 1,038, 297 therms to that proposed by the Company. *Id.*; Exh. BGC-75, p. 3.

This is the first time a company has proposed a “smoothing” technique to calculate a weather normalizing adjustment. Based on the record in this proceeding, it is far from clear whether the Company’s proposed approach produces a more accurate revenue requirement and

more accurate rates than the traditional method, a method which has been repeatedly approved by the Department in the past. *See Boston Gas Company*, D.P.U. 93-60, p. 78; *Berkshire Gas Company*, D.P.U. 92-210, p. 194 (1993); *Boston Gas Company*, D.P.U. 88-67, Phase I, pp. 67-72 (1988); *Fall River Gas Company*, D.P.U. 750, p. 8 (1981). In fact, the Company indicated that the primary purpose in spending the 40 to 50 person hours on this calculation was to provide a more stable HDD estimate to be used throughout the period the PBR might be in effect. Tr. VI, pp. 61-63, 66-67. There is nothing in the Company's PBR proposal that would require that normal HDD be held constant. Just as in any rate case the Company should be required to normalize its revenues and throughput volumes whenever it seeks to increase its rates. The 20-year moving average is a well-tested and accepted basis for these normalizing calculations, and one that is more readily applicable by the Department and other LDCs. It has the advantage of being a simple calculation, and as such, more easily verifiable.

Therefore, the Attorney General submits that the Department reject the Company's proposal to statistically smooth the HDD data. Accordingly, the Department should require the Company to reduce the revenue deficiency by \$194,642, and increase the test year normal throughput volumes relied on in the cost of service studies and in the Company's rate design by 1,038,297 therms, spread over the peak and off-peak periods for each weather sensitive rate class based on the data contained in Exh. AG-257.

**I. The Company's Excess Insurance Reserves Should Be Returned To Ratepayers**

The Company's excess insurance reserves should be returned to the ratepayers. During the test year, the Company discontinued self-insuring its group life and long-term disability insurance

plans. Exh. BGC-38, pp. 50-52. It decided it was more economic to use outside insurers to cover these liabilities. *Id.* As such, the insurance reserves were not necessary anymore.

The Company made annual accruals to the insurance reserve during the period when it was self-insuring to reflect the expected cash requirements associated with each liability. See Boston Gas Company Annual Returns to the Department for 1993, 1994, and 1995, p. 35. The reserves were then drawn down as the ongoing costs of each plan required. *Id.* When the Company stopped self-insuring these plans, it had \$376,370 remaining in the group life reserve and \$517,848 remaining in the long-term disability reserve. *Id.*

The reserves that existed when the Company terminated its self-insurance plans should be returned to the ratepayers. Since historically, the costs of the group life and long-term disability insurance plans have been included in the revenue requirements used to set rates, the monies that funded those reserves were derived from the rates that the Company's customers paid. Therefore, all funds that remain in each plan's reserve should be returned to the customers. The group life reserve to be returned is \$376,370. *Id.* The long-term disability reserve is \$517,848. *Id.* Therefore, a total of \$894,218 must be returned to the ratepayers. ( \$376,370 + \$517,848 ) Using a three-year amortization period, the Company's cost of service should be reduced by \$298,073 ( \$894,218 / 3 ) to reflect the return of these reserves to the ratepayers

**J. The Company's Proposed Revenue Requirement Should Be Reduced For The Cost Associated With Several Amortizations That Are Terminating**

The Company's pro forma cost of service includes expenses associated with the